

*The Journal of the*

# INSTITUTE OF METALS

*and*

## METALLURGICAL ABSTRACTS



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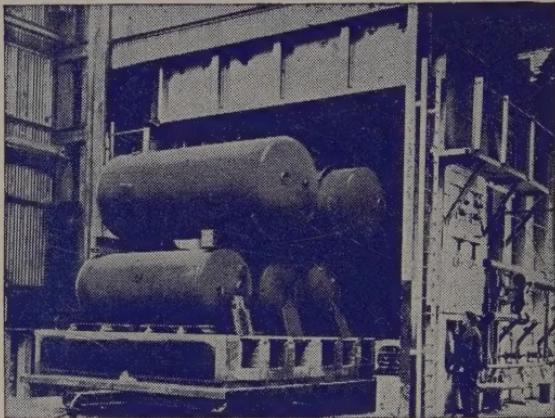
FEBRUARY 1951

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Oil Fired Stress Relieving Furnace

## ...in the hands of industry

Pressure vessels are bulky items and their heat treatment presents many problems. Moreover, the manufacture of this equipment has to conform to strict specifications. Cochran & Co. (Annan) Ltd. therefore had their furnace specially designed by Dowson & Mason. Oil was chosen as the practicable and economical fuel, and the furnace design embodies several interesting features.

The walls are built of high temperature insulating refractory only 9 in. thick. This has a low heat storage which allows both fast heating and accurate temperature control. The oil burners fire through combustion chambers in the top of the bogie, special tiling being used to give even heat distribution coupled with high thermal conductivity.

A typical operation is the heating of 30 to 40 tons of steel vessels. The heating-up period is from 3-4 hours, followed by 2 hours

soaking at 600/650° C. During this time the hot gases circulate round the vessels and exhaust through ports in the rear and front walls. The vessels then cool off slowly in the furnace. The whole heating process is automatically controlled; once the furnace door is shut the occasional attention of one man is all that is required.

Shell Heavy Fuel Oil is used and is circulated through a specially designed system round the furnace to 12 Laidlaw Drew oil burners. The consistent high quality of the fuel, which is delivered to the burners at a constant temperature and pressure, puts precision with ease at the fingertips of the operator.

Advice on all problems relating to the application, storage and handling of oil fuels can be obtained from your nearest SHELL and BP divisional office.

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September 1950

# THE INSTITUTE OF METALS

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Administrative and Editorial Offices :

4 GROSVENOR GARDENS, LONDON, S.W.1

Telephone :

SLOANE 5928 & 6233

## INSTITUTE NEWS AND ANNOUNCEMENTS

### 1951 ANNUAL GENERAL MEETING

The 1951 Annual General Meeting will be held in London on Tuesday, Wednesday, and Thursday, 13, 14, and 15 March. On 14 March there will be an all-day symposium on "Metallurgical Aspects of the Cold Working of Non-Ferrous Metals and Alloys", the papers in connection with which will be published in the January 1951 issue of the *Journal*.

The meetings on Tuesday and Wednesday, 13 and 14 March, will be held at the Park Lane Hotel, Piccadilly, W.1; the final session on the morning of Thursday, 15 March, will be held at the headquarters of the Institute, 4 Grosvenor Gardens, S.W.1.

On the morning of 13 March, after the normal official business, the new President, Professor A. J. MURPHY, M.Sc., will be inducted into the Chair and will deliver his Presidential Address. The session will end at about noon to give members an opportunity to meet before a Luncheon, in the same hotel. In the afternoon there will be a scientific session.

The whole of Wednesday, 14 March, will be devoted to the symposium on cold-working, referred to above.

A scientific and technical session on the Thursday morning will conclude the meeting, which it is hoped will be well attended.

### 1951 MAY LECTURE

The 1951 May Lecture will be delivered by Sir JOHN ANDERSON, P.C., G.C.B., G.C.S.I., G.C.I.E., F.R.S., in London on Wednesday, 23 May, at 6 p.m.

### 1951 AUTUMN MEETING

The Council has gratefully accepted an invitation from the Associazione Italiana di Metallurgia to hold the 1951 Autumn Meeting in Italy. Provisionally, it has been agreed that the meeting will begin in Venice on Monday, 17 September, and that on Friday, 21 September, members shall leave Venice for visits to works and laboratories either (a) in the North of Italy (aluminium works), (b) in Florence, or (c) in Milan.

The 1951 Autumn Meeting of the Iron and Steel Institute will be held in Austria, and it is proposed that both societies shall co-

## NEWS AND ANNOUNCEMENTS

operate, so that members of the Institute of Metals shall have the privilege of attending that meeting and that members of the Iron and Steel Institute shall have the privilege of attending the meeting of the Institute of Metals.

### COUNCIL : REPRESENTATION OF ALLIED SOCIETIES

MR. E. W. COLBECK, M.A., President of the Institution of Metallurgists, has been appointed to represent that Institution at meetings of the Council of the Institute of Metals, in succession to Mr. W. E. Ballard. MR. L. ROTHERHAM remains as the Institution's other representative.

### PUBLICATION OF JOURNAL.

It is regretted that the August and September issues of the *Journal* have been late in reaching members. This is partly due to the printers' works having been closed for a fortnight for holidays. It is hoped to return to the usual publication date shortly.

### BINDING OF INSTITUTE PUBLICATIONS

Mr. W. A. Newark, bookbinder, 2 Clerkenwell Green, London, E.C.1, announces that owing to the increasing size of the Institute's publications, it will be necessary to raise the price from 4s. 9d. to 5s. 6d. per volume, inclusive of postage to the customer. This increase will apply to Vol. 75 of the *Journal* (1948-49) and Vol. 16 of *Metallurgical Abstracts* (1948-49). Mr. Newark will, however, continue to bind previous volumes at the old rate of 4s. 6d. each, inclusive of postage to the customer. *Journals* and binding cases should be sent direct to him and not to the Institute.

### RATES OF SUBSCRIPTION TO THE INSTITUTE

The rates of subscription to the Institute of Metals are given below, with, in parentheses, the reduced rates of subscription applicable to members of the Iron and Steel Institute or the Institution of Metallurgists. There is no entrance fee. Particulars of membership may be obtained from the Secretary, 4 Grosvenor Gardens, London, S.W.1.

Ordinary Members : £4 4s. (£3 13s. 6d.) p.a.

Junior Members : £2 15s. (£2 10s.) p.a.

Student Members : £1 15s. (£1 11s.) p.a.

### DISCUSSION OF PAPERS

In order to assist the Committee responsible for arranging the programmes of the General Meetings of the Institute, will all members who are prepared to discuss orally any of the papers published in the *Journal* please inform the Secretary as soon as possible.

It is hoped that such information will enable programmes to be arranged which will secure well-attended and lively discussions.

## NEWS AND ANNOUNCEMENTS

### PERSONAL NOTES

DR. BANI R. BANERJEE, formerly research engineer with the Standard Oil Co. (Ind.), Chicago, has joined the faculty of the University of Calcutta. His address will be: Bengal Engineering College, P.O. Botanic Gardens, Howrah, West Bengal, India.

DR. F. A. CHAMPION is a member of a Productivity Team on Metal Finishing which is now visiting America.

MR. B. R. COLES has been appointed Lecturer in Metal Physics at the Imperial College of Science and Technology, London. Until recently he was engaged in research under Dr. W. Hume-Rothery at Oxford.

DR. D. K. CRAMPTON, Director of Research, Chase Brass and Copper Co., Inc., Waterbury, Conn., has been nominated a member of the Board of Directors of the American Society for Testing Materials.

MR. F. DEVINE has left Leeds University and is now a metallurgist with W. and T. Avery, Ltd., Birmingham.

MR. M. F. DOWDING has been appointed Engineering Sales Manager of Davy and United Engineering Co., Ltd. He has been with the firm since 1946, when he left the Army, and until recently was the Rolling Mill Research Engineer.

MR. A. K. DUTT has been appointed Assistant Foundry Manager at the iron and steel foundry of B.E.S. Co., Ltd., Calcutta 19, India.

MR. G. B. HARRIS has left the National Physical Laboratory in order to take up a research bursary of the British Iron and Steel Research Association under Dr. W. Hume-Rothery at Oxford.

MR. R. JONES, of High Duty Alloys, Ltd., is one of the United Kingdom representatives on the O.E.E.C. Mission which is now in America, under the Technical Aid Scheme, to study the recovery and use of secondary aluminium.

MR. D. M. LEWIS has left the British Iron and Steel Research Association to become Senior Technical Officer in the Research and Development Division of the British Steel Founders' Association, Sheffield.

MR. E. C. J. MARSH is a member of a Productivity Team on Metal Finishing which is now visiting America.

DR. C. H. MATHEWSON was honoured by a testimonial dinner on his recent retirement from the faculty of Yale University. It was announced at the dinner that the American Institute of Mining and Metallurgical Engineers had established a Mathewson medal and certificate to be awarded annually for the paper or series of closely related papers, having at least one common author, which represents the most notable contribution to metallurgical science. The paper must have been presented at one of the meetings of the Institute of Metals Division of the A.I.M.M.E. and have been published in its *Transactions*.

MR. P. S. MILES has left England and will be in Australia until 21 October, when he goes to India. His address there will be c/o Bengal Ingots Co., 5 Hide Road, Kidderpore, P.O. Box 10605, Calcutta 23.

## NEWS AND ANNOUNCEMENTS

DR. A. W. PETERSEN, formerly Assistant Professor in the Metallurgy Department of the Massachusetts Institute of Technology, is now Chief Metallurgist to the Parker Pen Co., Janesville, Wis.

MR. H. G. PYKE has been appointed Assistant Production Engineer at the Australian Gas Light Co.

DR. GEORGE SACHS has been appointed Vice-President of Horizons, Inc., of Princeton, N.J., and Cleveland, O., an experimental research laboratory for private industry.

DR. E. SCHEUER, of International Alloys, Ltd., is one of the United Kingdom representatives on the O.E.E.C. Mission which is now in America, under the Technical Aid Scheme, to study the recovery and use of secondary aluminium.

DR. PAUL SCHWARZKOPF, President of the American Electro Metal Corporation, has been awarded the medal given annually by Stevens Institute of Technology for outstanding achievement in the field of powder metallurgy.

DR. W. M. S. WALKER has been appointed Technical Director of Round Oak Steel Works, Ltd., Brierley Hill, Staffordshire.

MR. F. T. WHEELWRIGHT has left the Royal School of Mines and taken up an appointment with Richard Thomas and Baldwins, Ltd. (Midland Branch).

MR. A. D. WILKS has returned to India after an eight months' tour of Europe. He has now been posted as Superintendent, Ordnance Factory, Ambarnath. Mr. Wilks was awarded the M.B.E. in the last New Year's Honours List.

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*Note* : Will members (in addition to informing the Institute's administrative department of changes of address, occupation, &c.) kindly notify the Editor, *separately*, of all changes of occupation, appointments, award of honours and degrees, &c., as these matters interest their fellow-members.

## DIARY FOR OCTOBER–NOVEMBER

### LOCAL SECTIONS MEETINGS

#### THURSDAY, 26 OCTOBER

Birmingham Local Section.—D. R. Wood and R. Chadwick open discussion on "Continuous Casting Practice". (James Watt Memorial Institute, Great Charles Street, Birmingham 3, at 6.30 p.m.)

#### TUESDAY, 31 OCTOBER

South Wales Local Section.—Dr. E. C. Rhodes: "Precision Casting of Precious Metals". (Metallurgical Department, University College, Singleton Park, Swansea, at 6.30 p.m.)

#### THURSDAY, 2 NOVEMBER

Birmingham Local Section.—"Refractories". (James Watt Memorial Institute, Great Charles Street, Birmingham 3, at 6.30 p.m.)

## NEWS AND ANNOUNCEMENTS

### THURSDAY, 9 NOVEMBER

**London Local Section.**—Professor A. J. Murphy: “The Significance of Some Less-Common Metals”. (Royal School Mines, Prince Consort Road, London, S.W.7, at 7 p.m.)

### THURSDAY, 23 NOVEMBER

**Birmingham Local Section.**—A Metallurgical Quiz (Students' evening). (James Watt Memorial Institute, Great Charles Street, Birmingham 3, at 7 p.m.)

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## OTHER MEETINGS

### WEDNESDAY, 25 OCTOBER

**Institution of Production Engineers, Shrewsbury Sub-Section.**—A. W. Wallbank: “Industrial Finishes”. (Technical College, Shrewsbury, at 7.30 p.m.)

### THURSDAY, 2 NOVEMBER

**Leeds Metallurgical Society.**—“Modern Welding Practice”. (Chemistry Department, The University, Leeds 2, at 7 p.m.)

**Liverpool Metallurgical Society.**—Dr. H. G. Taylor: “Recent Work of the British Welding Research Association”. (Joint Meeting with the Liverpool and District Branch of the Institute of Welding.) (City Technical College, Byron Street, Liverpool, at 7 p.m.)

### TUESDAY, 7 NOVEMBER

**Royal Aeronautical Society.**—Major P. L. Teed: “Aircraft Metallic Materials under Low-Temperature Conditions”. (College of Technology, Belfast.)

### TUESDAY, 14 NOVEMBER

**Institute of Marine Engineers.**—G. H. Jackson: “Hardening and Heat-Treatment of Metals”. (85 The Minories, London, E.C.3, at 5.30 p.m.)

### TUESDAY, 28 NOVEMBER

**Royal Aeronautical Society.**—F. H. Parker: “Metal Adhesive Processes”. (4 Hamilton Place, London, W.1, at 7 p.m.)

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## APPOINTMENTS VACANT

**MAGNAL PRODUCTS, LIMITED**, Warmley, Bristol, invite applications for an assistant metallurgist experienced in the casting of aluminium alloys and magnesium alloys. Duties will consist of general metallurgical control of foundry and associated processes. Salary in accordance with training and experience. Applications should be made in writing to the Chief Metallurgist.

**METALLURGIST**, graduate preferred. With experience in metallography and preferably also in casting technology. For research work on light alloy casting alloys. Apply to Secretary, Magnesium Elektron, Ltd., Clifton Junction, Manchester.

**METALLURGICAL LABORATORY ASSISTANT**, aged about 25, preferably with two to three years' experience in a works metallurgical department is required for work in a metallurgical laboratory in the S.E. London area. Higher National Certificate or equivalent is essential. Applicants must collaborate with works staff and be able to use own initiative. Letters giving details of age and record should be sent to the Personnel Officer (Ref. GBLC), Research Laboratories of The General Electric Co., Ltd., East Lane, North Wembley, Middlesex.

# THE STRUCTURE OF METALS AND ALLOYS

By WILLIAM HUME-ROTHERY, M.A., D.Sc., F.R.S.

*Seventh (revised) Reprint*

Cloth. Pp. 137 with 61 Figures

Price : 10s. 6d. or \$2.00, post free (members 5s. 3d. or \$1.00, post free)

**CONTENTS :** THE ELECTRONIC BACKGROUND TO METALLURGY : The Structure of the Atom ; The Structure of the Molecule ; The Structure of the Crystal. THE CRYSTAL STRUCTURE OF THE ELEMENTS. THE ATOMIC RADII OF THE ELEMENTS. PRIMARY METALLIC SOLID SOLUTIONS : The Conception of Atomic Size Factor ; The Electro-negative Valency Effects ; The Form of Liquidus Curves ; The Form of Solidus Curves ; The Form of Primary Solid Solubility Curves ; Superlattice Structures. INTERMEDIATE PHASES IN ALLOY SYSTEMS : Normal Valency Compounds : Electron Compounds and the Electron Concentration Rule ; Interstitial and Other Structures Determined by the Size Factor. IMPERFECTIONS IN CRYSTALS AND DEVIATIONS FROM THE IDEAL LATTICE. INDEX.

## *Press Opinions of Previous Editions*

*Journal of the Franklin Institute* : ". . . one is impressed with the masterly co-ordination of the text with the illustrations, their arrangement and structure. The book can benefit a large number of scientific men of widely diversified interests."

*Nature* : ". . . a really authoritative account of pioneer work which may well indicate an entirely new era in fundamental, theoretical metallurgy."

*Chemistry and Industry* : "We consider the book an admirable one for its purpose."

THE INSTITUTE OF METALS  
4 Grosvenor Gardens, London, S.W.1.

October 1950.

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## INSTITUTE NEWS AND ANNOUNCEMENTS

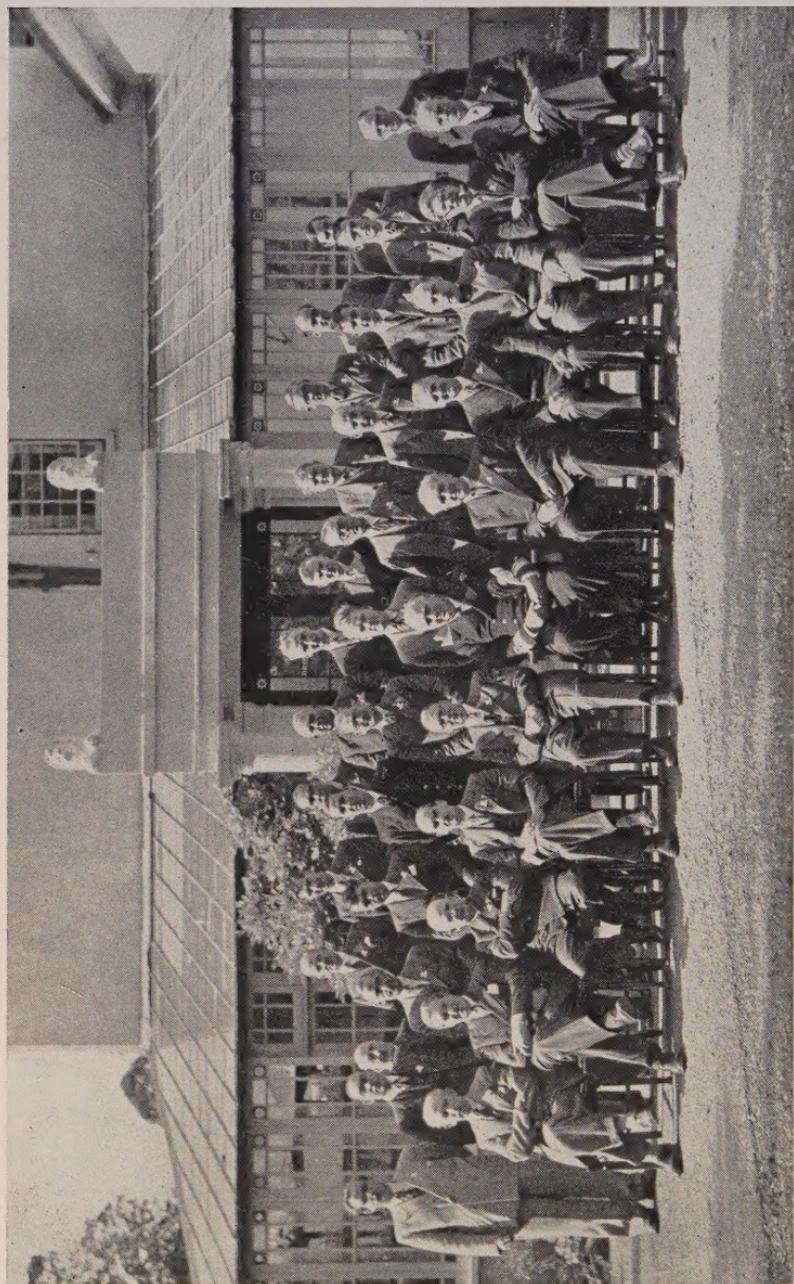
### ELECTION OF ORDINARY MEMBERS AND STUDENT MEMBERS

The following 19 members and 5 student members were elected on 25 September 1950 :

#### Ordinary Members

- ARMSTRONG, William McColl, B.A.Sc., Associate Professor of Metallurgy, University of British Columbia, Vancouver, B.C., Canada.
- BANNER, George James, Metallurgist, The Aston Chain and Hook Co., Ltd., Bromford Lane, Erdington, Birmingham.
- CURRAN, Eugene, O.B.E., Director and General Manager, Curran Steels, Ltd., Curran Road, Cardiff.
- DASTUR, Minu N., Sc.D., B.Sc., Chief Metallurgical Engineer, H. A. Brassert and Co., 60 East 42nd Street, New York 17, N.Y., U.S.A.
- FLINT, Robert Francis, Librarian, Fulmer Research Institute, Ltd., Stoke Poges, Bucks.
- GARDNER, John Frederick, Managing Director, John E. Moore, Ltd., Yeadon, Nr. Leeds, Yorks.
- GEROW, Carlyle, B.Sc., M.B.E., Secretary-Treasurer, The Canadian Institute of Mining and Metallurgy, 906 Drummond Building, Montreal, P.Q., Canada.
- GIBBS, Leland E., B.S., Manager, Technical Service, Revere Copper and Brass, Inc., Rome, N.Y., U.S.A.
- GRUBB, Laurence Charles, B.Sc., Chief Mechanical Engineer, South African Railways, Pretoria, South Africa.
- HOFMANN, Professor Wilhelm, Head, Institut für Werkstoffkunde und Schweißtechnik der Technischen Hochschule, Braunschweig, Germany.
- JONSON, George Ragnar, Assistant Sales Manager, AB Svenska Metallverken, Stockholm, Sweden.
- LADEVEZE, Alfred Leon, General Manager, H. J. Maybrey and Co., Ltd., Worsley Bridge Road, London, S.E.26.
- MCGRADY, Denton Delbert, M.S., Assistant Professor, Metallurgical Engineering Department, Michigan State College, East Lansing, Mich., U.S.A.

## NEWS AND ANNOUNCEMENTS



Members of the Institute of Metals on a visit to the Central Metallurgical Laboratory of the Admiralty, Emsworth, Hants., during the recent Autumn Meeting.

## NEWS AND ANNOUNCEMENTS

- McGUIRE, Francis Thomas, M.S., Ph.D., Metallurgist, Materials Engineering Department, Deere and Co., Moline, Ill., U.S.A.
- PAINES, Thomas Otten, A.B., M.Sc., Ph.D., Metallurgist, General Electric Co., Research Laboratory, Schenectady, N.Y., U.S.A.
- REID, George Thompson, Technical Adviser, Roberts Castings, Ltd., Holmfirth, Nr. Huddersfield, Yorks.
- REYNOLDS, Laurence Joseph, Managing Director, L. J. Reynolds and Co., Ltd., Honan's Quay, Limerick, Eire.
- SIMONETTI, Fiorentini Aurelio, Plant Manager, S.A. Manufacturas de Cobre, Ureta Cox 930, Santiago, Chile.
- THOMPSON, Gordon Vallins Elliot, B.Sc., Senior Assistant, Information Department, British Non-Ferrous Metals Research Association, Euston Street, London, N.W.1.

### Student Members

- HINCHLIFFE, Philip Russell, B.Sc., A.M.C.T., In H.M. Forces. (Mail): F.A.U. International Service, Steep, Petersfield, Hants.
- JOHN, Vernon Bowen, Student of Metallurgy, University College, Cardiff.
- MORRIS, John, Student of Metallurgy, University College, Cardiff.
- PALCHOUDHURI, Amitava, B.Sc., Student of Metallurgy, Battersea Polytechnic, London, S.W.11.
- PITTS, David William Norman, B.Sc., Research Student, Sir John Cass Technical Institute, London, E.C.3.

### RATES OF SUBSCRIPTION TO THE INSTITUTE

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It is hoped that such information will enable programmes to be arranged which will secure well-attended and lively discussions.

## NEWS AND ANNOUNCEMENTS

### LETTER TO THE EDITOR

#### MODIFICATION OF ALUMINIUM-SILICON ALLOYS

SIR,

I wish to apologize for failing to acknowledge the source of Fig. 3 (Plate V) in the paper by Dr. Thall and myself, which was published recently in the Institute's *Journal* (1950, 77, 79). Owing to an error, the description of this figure was incorrect and the source of the photograph was a contribution by Mr. D. R. Tullis to the discussion of a paper by Dr. M. L. V. Gayler (*Journal*, 1927, 38, 186). This photograph was chosen from among a number of similar ones in order to illustrate the phenomenon under discussion, and the inaccuracy of the description in the paper in no way impairs the validity of the argument.

Yours faithfully,  
B. CHALMERS.

Toronto, Canada,  
September 1950.

#### PERSONAL NOTES

MR. H. E. ARBLASTER has returned to Melbourne from Western Australia and has been appointed Materials Engineer to the Commonwealth Aircraft Corporation.

MR. F. C. BRABY is the leader of a Productivity Team on Galvanizing which is at present touring the United States.

PROFESSOR G. CHAUDRON was awarded the Luigi Losana gold medal for 1950 by the Associazione Italiana di Metallurgia at a meeting held in Florence on 28 September. Reference was made to the medal in the July issue of the *Journal* (p. 188). Professor Chaudron afterwards spoke on "The Importance of High-Purity Metals in Metallurgical Research".

MR. H. K. FARMERY has left the Rogerstone Works of the Northern Aluminium Co., Ltd., and is undertaking research work at Cambridge under Dr. U. R. Evans.

MR. G. FORREST has been appointed Associate Director of Research to Aluminium Laboratories, Ltd., Banbury.

PROFESSOR D. HANSON, D.Sc., Director of the Departments of Metallurgy and Industrial Metallurgy in the University of Birmingham, is visiting, during the coming winter, industrial establishments and centres of metallurgical education in Canada, the U.S.A., Australia, and New Zealand. He is expected to return about mid-April 1951.

MR. E. L. JAMES was recently awarded the B.Sc. degree of London University with 2nd Class Honours in Metallurgy.

MR. D. S. KEMSLEY has resigned from the staff of the Tribophysics Division of the Commonwealth Scientific and Industrial Research Organization, Melbourne, in order to take an appointment as Assistant Lecturer at the Kalgoorlie School of Mines.

DR. R. T. PARKER has succeeded Mr. G. H. Field, whose retirement was recently announced, as Director of Research to Aluminium Laboratories, Ltd., Banbury.

## NEWS AND ANNOUNCEMENTS

MR. H. W. PAXTON has been appointed to a Research Fellowship in Physical Metallurgy at Birmingham University.

MR. J. N. PRATT has been awarded the Ph.D. degree of Birmingham University.

MR. S. T. QUAASS has accepted a position with the Australian Department of Supply and is now working at the Aeronautical Research Laboratories, Fishermen's Bend.

MR. W. J. C. SERGEANT has left Copper and Alloys, Ltd., and is now metallurgical chemist with T. J. Priestman, Ltd., Birmingham.

MR. R. C. TAYLOR has left T. J. Priestman, Ltd., to take up an appointment as Chief Chemist and Technical Adviser to The Denver Chemical and Metal Refining Company, Barking, Essex.

MR. J. THEXTON has transferred from the Development and Research Laboratory of The Mond Nickel Co., Ltd., to Henry Wiggin and Co., Ltd., where he will be melting-shop manager.

MR. ROBERT T. WOOD has been appointed Chief Metallurgist of Magnesium Products to the Aluminum Company of America.

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*Note :* Will members (in addition to informing the Institute's administrative department of changes of address, occupation, &c.) kindly notify the Editor, *separately*, of all changes of occupation, appointments, award of honours and degrees, &c., as these matters interest their fellow-members.

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## NEWS OF LOCAL SECTIONS AND ASSOCIATED SOCIETIES

### LIVERPOOL METALLURGICAL SOCIETY

#### Student Paper Competition

The Society has decided to invite the submission of papers, in essay form, from students of metallurgy. There will be two classes in the competition, covering papers dealing respectively with : (a) a critical review of a subject within the field of physical metallurgy, and (b) a reasoned account of a process in the fields of metallurgical extraction or fabrication, for each of which a prize of three guineas is offered. The competition is open to all, living or working in the Mersey or Deeside areas, who are engaged upon the full-time study of metallurgy or who have not attained the age of 25 on 5 October 1950.

Entries, which should be in typescript and of approximately 3000 words in length, must be received by the Hon. Secretary not later than 1 February 1951. One essay only may be submitted by each competitor. Contributors of the prize-winning papers will be required to present them at the Annual General Meeting of the Society to be held on 5 April 1951.

## NEWS AND ANNOUNCEMENTS

### OTHER NEWS

#### BEILBY MEMORIAL AWARDS

From the interest derived from the invested capital of the Sir George Beilby Memorial Fund, at intervals to be determined by the Administrators representing the Royal Institute of Chemistry, the Society of Chemical Industry, and the Institute of Metals, awards are made to British investigators in science to mark appreciation of records of distinguished work. Preference is given to investigations relating to the special interests of Sir George Beilby, including problems connected with fuel economy, chemical engineering, and metallurgy, and awards are made, not on the result of any competition, but in recognition of continuous work of exceptional merit, bearing evidence of distinct advancement in science and practice.

In general, awards are not applicable to workers of established repute, but are granted as an encouragement to younger men who have done original independent work of exceptional merit over a period of years.

The Administrators are empowered to make more than one award in a given year if work of sufficient merit by several candidates is brought to their notice. In 1949 three awards, each of one hundred guineas, were made to Mr. F. R. N. Nabarro, Dr. C. E. Ransley, and Dr. K. W. Sykes.

Consideration will be given to the making of an award or awards from the Fund early in 1951, and the Administrators will therefore be glad to have their attention drawn to outstanding work of the nature indicated, not later than 31 December 1950.

All communications on this subject should be addressed to the Convener of the Administrators, Sir George Beilby Memorial Fund, Royal Institute of Chemistry, 30 Russell Square, London, W.C.1.

#### THE INSTITUTION OF METALLURGISTS : NEW ELECTIONS

The following elections have recently been announced :

##### As Fellows

H. Capper (Royal Naval Scientific Service), J. B. De Nardo (La Plata University), E. F. Waterhouse (D. C. Griffith and Co.).

##### As Fellows from the Grade of Associate

G. L. Thomas (John Miles and Partners (London), Ltd.), J. W. Todd (Stewarts and Lloyds, Ltd.).

##### As Associates

G. Bowman (Stewarts and Lloyds, Ltd.), C. A. Dalton (Armstrong Siddeley Motors, Ltd.), P. D. Griffiths (Metropolitan-Vickers Electrical Co., Ltd.), A. J. Hill (Dorman, Long and Co., Ltd.), R. J. Hills (British Railways), H. C. K. Ison (Chemical Research Laboratory, D.S.I.R.), E. A. Leech (Battersea Polytechnic), J. Lowndes (Guest, Keen and Nettlefolds, Ltd.), J. A. Menzies (Colvilles, Ltd.), R. L. Morton (Babcock and Wilcox, Ltd.), N. B. Muir (Imperial Chemical Industries, Ltd., Metals Division), W. R. E. Nice (H. J. Enthoven and Sons, Ltd.), E. A.

## NEWS AND ANNOUNCEMENTS

Oldfield (Darwins, Ltd.), J. D. Parsons (Harry Ferguson, Ltd.), A. X. Parthenis (English Electric Co., Ltd.), S. Senior (Stewarts and Lloyds, Ltd.), K. A. Shenoy (Tata Iron and Steel Co., Ltd.), R. C. Wagstaff (J. Stone and Co., Ltd.), R. B. Waterhouse (Fulmer Research Institute, Ltd.), C. V. Wilson (Rolls Royce, Ltd.)

### As Associates from the Grade of Licentiate

S. C. Anthony (Henry Wiggin and Co., Ltd.), R. F. Bowers (Brown Bayley's Steel Works, Ltd.), H. G. Burks (H.M. Government of Tanganyika Territory), A. Carter (Powderloys, Ltd., and Hard Metal Tools, Ltd.), H. C. Child (Wm. Jessop and Sons, Ltd.), F. D. Chisnall (Renold and Coventry Chain Co., Ltd.), G. Clough (Firth-Brown Tools, Ltd.), M. Dearden (The Skefko Ball Bearing Co., Ltd.), S. K. Dutta (Inspectorate of Metal and Steel, Ichapur), M. G. Gemmill (United Steel Companies, Ltd.), D. E. Hancox (Sterling Metals, Ltd.), R. J. Hey (British Driver-Harris Co., Ltd.), E. B. Neve (Broken Hill Associated Smelters, Pty. Ltd. (Australia)), A. W. Postlethwaite (Gillette Safety Razor Company (Boston, Mass.)), T. W. Ruffle (E.N.V. Engineering Co., Ltd.), P. E. White (J. B. and S. Lees, Ltd.), T. H. Wilson (Ford Motor Co., Ltd.)

### As Licentiates

W. J. Beukes (Union Steel Corporation of South Africa, Ltd.), S. C. Bhattacharjee (E.I. Railway Technical School (India)), G. Bourne (Wellworthy Piston Rings, Ltd.), A. Dale (Cochrane's (Middlesbrough) Foundry, Ltd.), I. H. Douglas (Birlec, Ltd.), R. W. Fields (Dorman, Long and Co., Ltd.), R. P. Fleming (Royal Arsenal, Woolwich), L. I. Goff (Electrolytic Refining and Smelting Co. of Australia Pty., Ltd.), G. Hoyle (British Iron and Steel Research Association), R. H. Humphreys (British Iron and Steel Research Association), W. J. Jones (Teddington Controls, Ltd.), E. C. Lloyd (Guest Keen Baldwins Iron and Steel Co., Ltd.), R. McDonald (Head, Wrightson and Co., Ltd.), D. MacKenzie (Jarrow Tube Works, Ltd.), H. N. Maliphant (Richard Thomas and Baldwins, Ltd.), D. N. Mookerji (B.N. Railway, India), H. K. Richardson (Ministry of Supply), K. A. Smith (Charles Cooper (Tipton), Ltd.), A. L. Waugh (Omes, Ltd.), H. B. Wight (Harland Engineering Co., Ltd.)

## AUSTRALIAN INSTITUTE OF METALS

The Physical Metallurgy Division of the Melbourne Branch of the Australian Institute of Metals held a successful Symposium on "The Physical Bases of Impregnation Processes", on Friday, 15 September, in the Engineering School, University of Melbourne.

The following papers were presented at the afternoon session, when the general rapporteur was Dr. J. C. Osborn: "The Structure of a Metal Surface" by A. J. W. Moore, "The Mechanisms of Diffusion" by P. F. Fensham, "The Effect of Diffusion on Structure in Alloy Systems" by R. L. Kamm, "Surface Hardening of Titanium" by H. W. Worner, and "New Interstitial Alloy Phases Related to the Surface Hardening of Steel" by K. H. Jack.

Mr. Ian Nish acted as rapporteur for the following papers, presented at the evening session: "Thermodynamics of Surface Impregnation Processes" by G. M. Willis, "The Thermodynamic

## NEWS AND ANNOUNCEMENTS

Principles Involved in Gaseous Metal Treatment by Volatile Metal Chlorides" by T. P. Hoar and E. A. G. Croom, "The Kinetics of Decomposition of Gases at Metal Surfaces" by M. R. F. Mulcahy, "Internal Oxidation of Dilute Copper Alloys" by D. W. Dewhurst and G. C. Smith, and "Reactions in Liquid Carburizing" by D. Colwell.

Dr. W. Boas was in the Chair and thanks to authors and others who had ensured the success of the symposium were expressed by Mr. A. F. Dunbar and Professor H. K. Worner. Copies of the papers, which will appear in the 1950 *Transactions* of the Australian Institute of Metals, may be had on application to Mr. J. S. Hoggart, Metallurgy Department, University of Melbourne.

A conference on the "Application of Isotopes in (Non-Medical) Scientific Research" was held in the Chemistry Department, University of Melbourne, on 14-17 August 1950. The sponsors were the Commonwealth Scientific and Industrial Research Organization and the University Chemistry Department.

The seventeen papers which were presented for discussion included one by W. Boas and P. J. Fensham on "Self-Diffusion in Tin", and one by F. K. McTaggart and I. E. Newnham entitled "Tracer Study of the Zirconium-Hafnium Separation". It is hoped that the proceedings of the Conference will be published in the near future. The Joint Secretaries are Dr. G. M. Harris, Chemistry Department, University of Melbourne, and Dr. T. H. Oddie, c/o Commonwealth X-Ray and Radium Laboratory, University of Melbourne.

### B.W.R.A. PRIZE AWARD

The Council of the British Welding Research Association have awarded the 1949 Welding Research Prize of £100 to Dr. K. Winterton, Mr. J. G. Ball, and Mr. C. L. M. Cottrell for their joint paper entitled "A New Weldability Test for Magnesium Alloy Sheet". This prize has been donated by the British Oxygen Co., Ltd., who have kindly offered to provide a Prize Fund for a competition relating to welding for three years.

The Council have decided that the closing date for entries for the 1950 competition shall be extended to 31 December 1950. A single prize of £100 is offered again this year and will be awarded for the best paper submitted on a research into welding or its applications. Full details relating to this competition can be obtained from The Secretary, British Welding Research Association, 29 Park Crescent, London, W.1.

### "BUBBLE MODEL OF A METAL"

Copies of the 16 mm. silent film "Bubble Model of a Metal", which was made in 1946 under the direction of Professor Sir Lawrence Bragg, have recently been placed in the Central Film Library, Government Building, Bromyard Avenue, Acton, London, W.3, and are available on free loan to borrowers having their own projectors. At least 14 days' notice is required.

Departments and Colleges wishing to use this film and having no projection facilities of their own, should apply to the appropriate Regional Film Officer of the Central Office of Information, who may be able to provide a free projection service.

The film illustrates the behaviour of a model made to simulate

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a metal structure, the atoms being represented by small bubbles floating on the surface of a soap solution. The film shows the behaviour of the model under various kinds of distortion and is useful for demonstrating the processes that are believed to occur in strained metals. The running time is 16 minutes.

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## DIARY FOR NOVEMBER-DECEMBER

### LOCAL SECTIONS MEETINGS

#### TUESDAY, 21 NOVEMBER

**South Wales Local Section.**—A. W. Hothersall: “Electro-deposition for Engineering Purposes”. (Metallurgical Department, University College, Singleton Park, Swansea, at 6.30 p.m.)

#### FRIDAY, 24 NOVEMBER

**Sheffield Local Section.**—F. G. Parker: “Electrodeposition of Silver”. (Joint Meeting with Sheffield Branch of the Electro-depositors’ Technical Society.) (Grand Hotel, Sheffield, at 6.30 p.m.)

#### THURSDAY, 7 DECEMBER

**Birmingham Local Section.**—H. Carr: “Tool Steels”. (James Watt Memorial Institute, Great Charles Street, Birmingham 3, at 6.30 p.m.)

**London Local Section.**—F. C. Evans: “Melting Furnaces for Non-Ferrous Alloys”. (Joint Meeting with the London Branch, Institute of British Foundrymen.) (4 Grosvenor Gardens, London, S.W.1, at 7 p.m.)

#### MONDAY, 11 DECEMBER

**Scottish Local Section.**—J. D. Glen: “Non-Ferrous Metals in the Locomotive Industry”. (39 Elmbank Crescent, Glasgow, C.2, at 6.30 p.m.)

#### THURSDAY, 14 DECEMBER

**Sheffield Local Section.**—R. Haynes: “The Isothermal Transformation [of Copper-Base Alloys”. (Grand Hotel, Sheffield, at 6.30 p.m.)

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## OTHER MEETINGS

#### WEDNESDAY, 22 NOVEMBER

**Manchester Metallurgical Society.**—K. S. Rawlin and C. Wilkinson: “Methods of Examination and Identification of Aircraft Materials”. (Engineers’ Club, Albert Square, Manchester, at 6.30 p.m.)

#### TUESDAY, 28 NOVEMBER

**Institution of Chemical Engineers.**—Stanley Robson: “Chemical Engineering Experiences in the Metallurgical and Chemical Industries”. (Geological Society, Burlington House, Piccadilly, London, W.1, at 6 p.m.)

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### TUESDAY, 5 DECEMBER

**Electrodepositors' Technical Society, Midlands Centre.**—W. J. Lovatt: "Polishing Practice in the U.S.A." (James Watt Memorial Institute, Great Charles Street, Birmingham 3, at 6.30 p.m.)

### THURSDAY, 7 DECEMBER

**Leeds Metallurgical Society.**—Films on Foundry Work. (Chemistry Department, The University, Leeds 2, at 7 p.m.)

**Liverpool Metallurgical Society.**—Professor H. W. Swift, "Research in Deep Drawing". (Lecture Theatre, Electricity Service Centre, Whitechapel, Liverpool, at 7 p.m.)

### FRIDAY, 15 DECEMBER

**Electrodepositors' Technical Society, Sheffield and North-East Centre.**—E. A. Ollard: "Heating and Filtration of Solutions". (Grand Hotel, Sheffield, at 6.30 p.m.)

**West of Scotland Iron and Steel Institute.**—Dr. J. W. Jenkin: "Tube Manufacture". (39 Elmbank Crescent, Glasgow, C.2, at 6.45 p.m.)

### MONDAY, 18 DECEMBER

**Electrodepositors' Technical Society, London Centre.**—N. Parkinson: "The Electrodeposition of Bright Tin-Nickel Alloys". (Northampton Polytechnic, St. John Street, Clerkenwell, London, E.C.1, at 6 p.m.)

### THURSDAY, 21 DECEMBER

**Institution of Mining and Metallurgy.**—General Meeting. (Geological Society, Burlington House, Piccadilly, London, W.1, at 5 p.m.)

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## APPOINTMENTS VACANT

**BAKER PLATINUM, LTD.** have vacancies in their Technical Department at Slough for two metallurgists and one physicist for research and development work on precious metals. Salary according to qualifications and experience, in the range £400-£600 p.a. The posts are permanent. Send full particulars to Hanovia Works, Bath Road, Slough, Bucks.

**METALLURGIST**, graduate preferred. With experience in metallography and preferably also in casting technology. For research work on light alloy casting alloys. Apply to Secretary: Magnesium Elektron, Ltd., Clifton Junction, Manchester.

**METALLURGISTS.** Applications are invited for the following appointments with the Imperial Smelting Corporation, Limited, Avonmouth, Bristol.

GROUP LEADER METALLURGIST to instigate research programmes concerned with the extraction of non-ferrous metals, and to supervise teams of metallurgists engaged on pilot plant scale experiments into extraction metallurgy. Must have good honours degree or higher qualification and some years' experience in development work.

TECHNICAL ASSISTANTS for plant and research work. To carry out research and investigations into metallurgical problems connected with the extraction of non-ferrous metals. Candidates must have degree or equivalent qualifications. Experience not essential.

All appointments are permanent and superannuated. Prospects of promotion are good. Apply in writing to Manager, Personnel Department, giving age and brief details of qualifications and experience, quoting the reference IM/M.

# THE INSTITUTE OF METALS

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## INSTITUTE NEWS AND ANNOUNCEMENTS

### ELECTION OF ORDINARY MEMBERS, JUNIOR MEMBER, AND STUDENT MEMBERS

The following 16 Ordinary Members, 1 Junior Member, and 5 Student Members were elected on 30 October :

#### *As Ordinary Members*

- BARRETT, Charles S., B.S., Ph.D., Professor of Metallurgy, University of Chicago, Chicago 37, Ill., U.S.A.  
BEAUMONT, Frederick William, Works Manager, Wednesbury Tube Company, Ltd., Bilston, Staffs.  
CALDERWOOD, W. Hamilton, Technical Representative, Gibbons (Dudley), Ltd., Dibdale Works, Dudley, Worcs.  
COLES, Graham Winton, B.Sc., Metallurgist, Stewarts and Lloyds, Ltd., Corby, Northants.  
COOK, Albert Rundle, B.A., Metallurgist, Almag Engineering Company, Ltd., Kirkby Trading Estate, Liverpool.  
GUTTENSTEIN, Konrad, Managing Director, Loewy Engineering Company, Ltd., Westbourne, Bournemouth, Hants.  
HAFFNER, Eduard K. L., Director and Chief Engineer, Loewy Engineering Company, Ltd., Westbourne, Bournemouth, Hants.  
LAHIRI, Colonel Birendra Nath, M.Sc., Ph.D., Ordnance Consulting Officer for India, 76 South Audley Street, London, W.1.  
MOELLER, Roger David, M.S., Metallurgist, Los Alamos Scientific Laboratory, Los Alamos, N.M., U.S.A.  
MOORBYS, F. H., Radiologist and Metallurgist, John Dale, Ltd., London Colney, St. Albans, Herts.  
NÜTH, Ernst, Chief Engineer, A.B. Nordiska Armaturfabrikerna, Linköping, Sweden.  
PAGE, Edward John, Foundry Supervisor, Copper and Alloys, Ltd., West Bromwich, Staffs.  
SCHNEIDER, Kurt, Dr.-Ing., Manager, Aluminiumwerke Nürnberg G.m.b.H., Nopitschstrasse 67, Nürnberg, Germany.  
SIMS, Clarence E., M.S., Research Metallurgist, Battelle Memorial Institute, 505 King Avenue, Columbus 1, O., U.S.A.

## NEWS AND ANNOUNCEMENTS

- WEITLAUF, Frederica M., Technical Librarian, Timken Roller Bearing Company, Canton 6, O., U.S.A.  
WILLIAMS, Caleb George, Metallurgist, Norton Motors, Ltd., Bracebridge Road, Birmingham 6.

### *As Junior Member*

- STEWART, Robert Graham, B.Met.E., Metallurgist, Materials Engineering Department, Commonwealth Aircraft Corporation Pty., Ltd., Port Melbourne, Australia.

### *As Student Members*

- GRIMWOOD, Kenneth William, Assistant Metallurgist, Enfield Rolling Mills, Ltd., Brimsdown, Enfield, Middlesex.  
HALL, Brian William, Laboratory Assistant, George Morgan, Ltd., Selly Oak, Birmingham 29.  
HOOPER, Frank Arthur, Assistant Metallurgist, George Morgan, Ltd., Selly Oak, Birmingham 29.  
MOHAN, Anand, M.Sc., Research Student, Department of Metallurgy, Indian Institute of Science, Bangalore, India.  
WRIGHT, Colin Bernard, B.A., Research Student, Royal Institution, 21 Albemarle Street, London, W.1.

The following 10 Ordinary Members and 14 Student Members were elected on 15 November :

### *As Ordinary Members*

- BOUCHARD, Jean, Consulting Engineer, 54 Avenue du Bas-Meudon, Issy-les-Moulineaux (Seine), France.  
BÜCKLE, Helmut, Dr.-Ing., Metallurgist, Office National d'Etudes et Recherches Aéronautiques, 3 rue Léon Bonnat, Paris 16e, France.  
DUNKLEY, Christopher Charles, B.Sc., Works Engineer, James Bridge Copper Works, Ltd., Darlaston Road, Walsall, Staffs.  
EFJESTAD, Dagfin, Works Manager, A/S Årdal Verk, Årdalstangen i Sogn, Norway.  
HAMILTON, Alan William, Representative, Imperial Chemical Industries, Ltd., Metals Division, 4 Blythswood Square, Glasgow.  
JACOBSON, Francis S., Metallurgical Engineer, Kaiser Steel Corporation, P.O. Box 217, Fontana, Calif., U.S.A.  
LANGEN, Mathias, Director and Chief Engineer, Loewy Engineering Company, Ltd., Westbourne, Bournemouth, Hants.  
POTEMKINE, Wladimir, Office National d'Etudes et Recherches Aéronautiques, Châtillon/Bougneux (Seine), France.  
THOMAS, Charles Shenton, Inspecting Engineer, Messrs. Rendel, Palmer and Tritton, 125 Victoria Street, London, S.W.1.  
WORMWELL, Frank, M.Sc., Ph.D., Research Chemist, Chemical Research Laboratory, Teddington, Middlesex.

### *As Student Members*

- ALLMAND, Thomas R., Student of Metallurgy, Battersea Polytechnic, London, S.W.11.  
BRITTON, John, Student of Metallurgy, University College, Swansea.

## NEWS AND ANNOUNCEMENTS

- CAPUS, Joseph Michael, Student of Metallurgy, University of Birmingham.
- CHANGARNIER, Christiane, Office National d'Etudes et Recherches Aéronautiques, 3 rue Léon Bonnat, Paris 16e, France.
- Cox, Antony Hugh, Student Metallurgist, John Dale, Ltd., London Colney, St. Albans, Herts.
- DODD, John, Student of Metallurgy, King's College, Newcastle-on-Tyne.
- HILL, Sidney James Thomas, Student of Metallurgy, Johnson, Matthey and Co., Ltd., Hatton Garden, London, E.C.1.
- JACKSON, Norman Henderson, Student of Metallurgy, King's College, Newcastle-on-Tyne.
- JAMES, Brian Patterson, Student of Metallurgy, Sheffield University.
- MILLS, Stuart Edward, Student of Metallurgy, Sheffield University.
- MORTON, Alan, Student of Metallurgy, Sheffield University.
- PROUDFOOT, Edward, Student of Metallurgy, King's College, Newcastle-on-Tyne.
- WILLIAMS, Edward, Metallurgical Assistant, North Thames Gas Board, Watson House Laboratories, London, S.W.6.
- YORKE, Joan Margaret, Student of Metallurgy, Battersea Polytechnic, London, S.W.11.

### ERRATUM

In Fig. 15 (Plate VIII) of the Autumn Lecture by Mr. E. E. Schumacher, published in the September 1950 issue of the *Journal*, "Clock-reducing varistor" should read "Click-reducing varistor".

### RATES OF SUBSCRIPTION TO THE INSTITUTE

The rates of subscription to the Institute of Metals are given below, with, in parentheses, the reduced rates of subscription applicable to members of the Iron and Steel Institute or the Institution of Metallurgists. There is no entrance fee. Particulars of membership may be obtained from the Secretary, 4 Grosvenor Gardens, London, S.W.1.

Ordinary Members: £4 4s. (£3 13s. 6d.) p.a.

Junior Members: £2 15s. (£2 10s.) p.a.

Student Members: £1 15s. (£1 11s.) p.a.

### DISCUSSION OF PAPERS

In order to assist the Committee responsible for arranging the programmes of the General Meetings of the Institute, will all members who are prepared to discuss orally any of the papers published in the *Journal* please inform the Secretary as soon as possible.

It is hoped that such information will enable programmes to be arranged which will secure well-attended and lively discussions.

## NEWS AND ANNOUNCEMENTS

### PERSONAL NOTES

MR. V. T. BALASUBRAMANIAN has taken up an appointment with Messrs. Hepworth and Grandage, Ltd., Bradford, Yorks.

MR. D. H. BUTLER has left the British Non-Ferrous Metals Research Association to join the staff of Copper and Alloys, Ltd., West Bromwich.

PROFESSOR GEORGES CHAUDRON has been made an Officer of the Legion of Honour.

MR. M. G. COCKCROFT has been appointed a Research Fellow in the Department of Industrial Metallurgy at Birmingham University.

M. GEORGES DELBART, Director of the Institut de Recherches de la Sidérurgie, has been made a Chevalier of the Legion of Honour.

MR. J. D. GILCHRIST has been appointed a Lecturer in Metallurgy at King's College, Newcastle-on-Tyne.

MR. W. J. JACKSON recently obtained the degree of B.Sc. with Honours in metallurgy and is now an assistant metallurgist with the British Oxygen Co., Ltd., Morden.

MR. SANAT KUMAR KABI has come to this country from India in order to study at the Royal Technical College, Glasgow.

DR. IRVING LANGMUIR (Honorary Member) has received the John J. Carty Gold Medal and Award of the U.S. National Academy of Sciences. The award is made not more than once in two years for noteworthy contributions to the advancement of fundamental or applied science in any field.

MR. A. D. LEA has recently graduated from Manchester University with Honours in Metallurgy and has joined the Works Experimental Dept. of The British Aluminium Co., Ltd., Milton.

MR. D. C. MOORE has left the Department of Industrial Metallurgy at Birmingham University and taken up a position with the Aluminium Development Association.

MR. G. H. NOORDHOF has been appointed a lecturer in the Department of Education of the International Wool Secretariate.

MR. J. D. NOURSE has relinquished his post as metallographer with the Bristol Aeroplane Co., Ltd. (Engine Division), and has taken up an appointment as Chief Metallurgist at the bronze foundries of Yorkshire Engineering Supplies, Ltd., Leeds.

MR. J. J. PICK has resigned his position with the Birmingham Small Arms Co. to become a Research Fellow in Industrial Metallurgy at the University of Birmingham.

PROFESSOR ALBERT PORTEVIN has been made a Commandeur dans l'Ordre de Léopold by the Belgian Government.

PROFESSOR DR.-ING. PAUL RÖNTGEN was made an honorary member of the Gesellschaft Deutscher Metallhütten- und Bergleute e.V. at the 1950 General Meeting at Goslar, on the occasion of his 25th anniversary as professor in the Institute of Metallurgy and Electrometallurgy at the Technical University, Aachen. Professor-Röntgen is one of the founders of the Society.

## NEWS AND ANNOUNCEMENTS

MR. A. J. SWAIN has taken up a post in the Technical Department of the Aluminium Wire and Cable Co., Ltd., Swansea.

MR. BRIAN TAYLOR, having graduated from the Royal School of Mines with 2nd class Honours in Metallurgy, is now a Research Bursar at the British Non-Ferrous Metals Research Association.

MR. H. T. TUCKER is now with the Anglo-Transvaal Consolidated Investment Co., Ltd., P.O. Box 1, Florida, Transvaal, S.A.

DR. A. C. VIVIAN has retired, on reaching the age-limit, from the post he has held for the last five years as Metallurgist at the Telecommunication Research Establishment, Ministry of Supply. His work there included research on finishes for metals and plastics to render them highly conductive at ultra-high frequencies. Dr. Vivian's services are now available as a consultant, his address being 65 New Street, Ledbury, Herefordshire.

MR. R. J. WASILIEWSKI has left for a two-year course of post-graduate studies in the United States, on an E.C.A. Award.

MR. G. H. H. WILLIAMS has left University College, Swansea, and has taken a post as metallurgist with the Enfield Rolling Mills, Ltd.

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## DEATHS

The Editor regrets to announce the deaths of :

MR. GEORGE BERNARD BROOK, Consultant to D. F. Tayler and Co., Ltd., on 15 October at the age of 77.

MR. RICHARD BANNER DEELEY, B.Sc., A.R.S.M., Technical Director of Lightalloys, Ltd., on 16 October, in his fiftieth year.

CAPTAIN JOHN HALL FARMER on 8 November at the age of 65. Until his retirement last April on account of ill-health, Captain Farmer was general manager of the Central Marine Works of William Gray and Co., Ltd., shipbuilders, West Hartlepool.

MR. JOSEPH GORDON SIMPSON, analyst, of Borough High Street, London, S.E.1.

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## NEWS OF LOCAL SECTIONS AND ASSOCIATED SOCIETIES

### SOUTH WALES LOCAL SECTION

At his inaugural meeting as Chairman of the South Wales Local Section, held at the University College, Swansea, on 10 October, 1950, Mr. E. A. HONTOIR, B.Sc., A.I.M., presented a paper entitled :

The Revival of the Non-Ferrous Metal Industry in South Wales.

The growth of the industry from the very earliest times was traced, and it was shown how the Swansea area became the most important district in the world for the extraction of the chief non-ferrous metals from their ores, with particular emphasis on copper.

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As smelter plant became erected near to the ore mines abroad, however, a decline began which persisted until, shortly after World War I, the period of lowest ebb was reached.

In the nineteen thirties an improvement began and with World War II great activity took place, which has to a large extent been maintained in the change-over to post-war needs. The striking difference which has occurred is that from being so largely an area wherein the non-ferrous metals were extracted from their ores, South Wales has turned increasingly to the fabrication of these metals, while copper has surrendered pride of place to aluminium and its alloys.

Concluding, Mr. Hontoir stressed the important part which the Institute of Metals has to play in the new development.

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## OTHER NEWS

### INSTITUTION OF MINING AND METALLURGY

The Council of the Institution of Mining and Metallurgy announce that the President for the Session 1951-52 will be SIR LEWIS FERMOR, O.B.E., A.R.S.M., D.Sc., F.R.S., formerly Director of the Geological Survey of India. He will take office at the Annual General Meeting to be held on 17 May next.

### INTERNATIONAL UNION OF CRYSTALLOGRAPHY

Further details have now been issued regarding the Second General Assembly and International Congress of the Union of Crystallography, to be held in Stockholm from 27 June to 3 July 1951.

Delegates to the General Assembly, which will be concerned with the formal business of the Union, will be nominated by the National Committees. Crystallographers throughout the world are, however, cordially invited to attend the Congress, for which a membership fee of 50 Swedish crowns will be payable.

The subjects selected for discussion are: (1) instruments and measurements; (2) new developments in structure determination; (3) mineral structures; (4) metal structures; (5) inorganic structures; (6) organic structures; (7) proteins and related structures; (8) random and deformed structures; (9) thermal transformations; (10) crystal growth; (11) neutron diffraction; and (12) miscellaneous.

In addition there will be two symposia, dealing respectively with advanced techniques in structure determination and electron diffraction in liquids and gases.

The General Secretary of the Union is R. C. Evans, Crystallographic Laboratory, Cavendish Laboratory, Cambridge. Enrolment should be effected before 15 February 1951.

### INTERNATIONAL WELDING CONGRESS

An International Welding Congress is meeting in London and Oxford from 14 to 21 July next year. The Congress will include the annual meeting of the International Institute of Welding and its various Commissions, and is being sponsored in this country

## NEWS AND ANNOUNCEMENTS

by the five British member societies, namely, the Institute of Welding, the British Welding Research Association, the British Acetylene Association, the Welding Sections of the British Electrical and Allied Manufacturers' Association, and the Sheet and Strip Metal Users' Technical Association. The President of the Reception Committee is Sir William Larke, K.B.E.

The Congress will open in London on Saturday, 14 July, and will be transferred on the following day to Oxford, where three colleges, Christ Church, Oriel, and Somerville, will accommodate the visitors, who are expected to number between four and five hundred.

Meetings of the fourteen technical Commissions of the Institute will occupy the first two days, and in the second part of the week there will be three open sessions for the presentation and discussion of papers as follows: "The Welding of the Wrought Light Alloys" (Chairman: Sir Arthur Smout); "The Welding of Bridges and Allied Structures" (Chairman: Professor J. F. Baker); and "Present Trends in British Welding" (Chairman not yet appointed).

A full programme of social functions is being arranged, including a concert and a dance in Oxford and a concluding banquet at the Savoy Hotel in London on Saturday, 21 July. In the following week facilities will be provided through the twenty Branches of the Institute of Welding for members of the Congress to visit works in all parts of the country.

The Secretary of the Congress is the Secretary-General of the International Institute of Welding, Mr. G. Parsloe, and the office of the Organizing Committee is at 2 Buckingham Palace Gardens, Buckingham Palace Road, London, S.W.1.

### THE SUPPLY OF HIGH-PURITY METALS IN GREAT BRITAIN

There are about 58 metallic elements, only a few of which are commercially available in a state of very high purity, for example 99.99%. In some cases when a high degree of purity is claimed, this is based on spectrographic analysis and the presence of non-metallic impurities such as oxygen, carbon, or nitrogen, is disregarded. These elements are often the main impurities and are sometimes the most important metallurgically.

On several occasions, and particularly during the war, important research projects have been delayed through lack of metals of suitable purity, and to obviate this in future, the D.S.I.R., through its Chemistry Research Board, set up a Pure Metals Committee.

The task of this Committee has been to determine, by means of thorough analyses, which metals are actually available in a high state of purity, and to promote the manufacture of batches of higher-purity material where this has been necessary. On the advice of the Committee, the D.S.I.R. has acquired limited quantities of some of these latter metals, and others are being obtained.

The Department also has a considerable amount of information about these elements which will be published more fully in the near future. On the basis of this, the following classification has been made:

## NEWS AND ANNOUNCEMENTS

*Group 1.*—Metals available commercially in a purity approaching 99.99%. Information can be given as to where they can be obtained.

*Group 2.*—Metals of high purity, not generally available, which have been produced for the Department and can be supplied for research purposes.

*Group 3*—Metals not yet available in a pure state, but which are being produced for the Department.

*Group 4.*—Metals which do not appear to be of sufficient interest to justify action at the present time.

All enquiries regarding this work, including information concerning metals in Group 1 and the conditions under which metals in Group 2 can be made available to research workers, should be addressed to The Secretary, D.S.I.R. Pure Metals Committee, Metallurgy Division, National Physical Laboratory, Teddington, Middlesex.

### STANDARDIZATION OF SIZES OF TUBES MADE FROM SPECIAL REFRACTORIES

The Sintered Oxides Sub-Committee of the Inter-Service Metallurgical Research Council (Ministry of Supply and Admiralty) has held discussions with manufacturers with the aim of improving the supply of tubes of special refractory. At present, delay in the delivery of these items arises mainly from the large number of different sizes which are demanded by the users, making it difficult for the manufacturers to maintain stocks.

It has now been agreed to concentrate on production of a range of sizes which are to be regarded as standard henceforward. The sizes adopted have been chosen after careful consideration of the demand for tubes in recent years, and it is hoped that they will fulfil the requirements of most users. The manufacturers have undertaken to maintain stocks of the standard sizes, so that orders may be met from articles in stock.

The success of this attempt to provide better supplies of tubes will depend, of course, on the wholehearted co-operation of the users. In particular, those employing large numbers of tubes are asked to standardize their sizes and those designing new apparatus are asked to use standard sizes wherever possible. Production of the standard items will commence immediately. Non-standard tubes will be obtainable, but their delivery may still be subject to delay.

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## DIARY FOR JANUARY

### LOCAL SECTIONS MEETINGS

THURSDAY, 4 JANUARY

Birmingham Local Section.—Discussion on "Temperature Measurements". (James Watt Memorial Institute, Great Charles Street, Birmingham, 3, at 6.30 p.m.)

MONDAY, 15 JANUARY

Scottish Local Section.—Visit to the works of Henry Wiggin and Co., Ltd., Thornliebank, Glasgow.

## NEWS AND ANNOUNCEMENTS

### TUESDAY, 16 JANUARY

**South Wales Local Section.**—A. R. Powell: "Recent Developments in the Production of Some of the Rarer Metals". (Metallurgical Department, University College, Singleton Park, Swansea, at 6.30 p.m.)

### MONDAY, 22 JANUARY

**London Local Section.**—Dr. F. P. Bowden: "Friction and Lubrication of Solids". (Joint Meeting with the Society of Chemical Industry.) (London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C.1, at 6 p.m.)

### THURSDAY, 25 JANUARY

**Birmingham Local Section.**—D. J. C. Brandt: "The Use of Oxygen in Steelmaking". (James Watt Memorial Institute, Great Charles Street, Birmingham, 3, at 6.30 p.m.)

**Sheffield Local Section.**—M. M. Hallett: "Cast Corrosion-Resisting Alloys". (Grand Hotel, Sheffield, at 6.30 p.m.)

## OTHER MEETINGS

### TUESDAY, 2 JANUARY

**Electrodepositors' Technical Society, Midlands Centre.**—Discussion with Anglo-American Productivity Team on Metal Finishing. (James Watt Memorial Institute, Great Charles Street, Birmingham, 3, at 6.30 p.m.)

### THURSDAY, 4 JANUARY

**Leeds Metallurgical Society.**—C. Breckon: "The Uses of Copper Alloys". (Chemistry Department, The University, Leeds, 2, at 7 p.m.)

### FRIDAY, 5 JANUARY

**Manchester Association of Engineers.**—E. Hindson: "Automatic Welding". (Engineers' Club, 17 Albert Square, Manchester, at 6.45 p.m.)

### THURSDAY, 11 JANUARY

**Liverpool Metallurgical Society.**—H. Morrogh: "The New Nodular Cast Irons". (Lecture Theatre, Electricity Service Centre, Whitechapel, Liverpool, at 7 p.m.)

### MONDAY, 15 JANUARY

**Electrodepositors' Technical Society, London Centre.**—A. H. E. Barrow: "Plating Jigs". (Northampton Polytechnic, St. John Street, London, E.C.1, at 6 p.m.)

### WEDNESDAY, 17 JANUARY

**Manchester Metallurgical Society.**—Visit to the Department of Metallurgy, Manchester University.

### FRIDAY, 26 JANUARY

**Electrodepositors' Technical Society, Sheffield and North-East Centre.**—Open Evening Discussion. C. Wharrad in the Chair. (Grand Hotel, Sheffield, at 6.30 p.m.)

## NEWS AND ANNOUNCEMENTS

### APPOINTMENTS VACANT

**EXPERIENCED METALLOGRAPHER** required for Nelson Research Laboratories of the English Electric Co., Ltd., Stafford. Applicants should possess at least the National Certificate in Metallurgy, and have a minimum of three years' practical experience. Salary according to qualifications and experience. Write giving full details and quoting ref. 824 to Central Personnel Services, English Electric Co., Ltd., 24-30, Gillingham Street, London, S.W.1.

**METALLURGIST** about 35 years of age with 1st or 2nd Class Honours degree, required for research and development work on metallic materials. Candidates should preferably have had industrial research experience in the application of metallurgy to engineering subjects, including the welding of ferrous and non-ferrous metals and alloys. Salary according to training and experience. Details to Box No. 301, Institute of Metals, 4 Grosvenor Gardens, London, S.W.1.

**METALLURGIST**, graduate preferred. With experience in metallography and preferably also in casting technology. For research work on light-alloy casting alloys. Apply to Secretary, Magnesium Elektron, Ltd., Clifton Junction, Manchester.

**MINISTRY OF SUPPLY** invites applications from **METALLURGISTS** for posts in the grade of **EXPERIMENTAL OFFICER** (Reference F. 626/50 A) (normal minimum age 28) for laboratory work in an establishment in North-west England.

For these vacancies preference will be given to candidates holding a University degree in Metallurgy or who are Associate Members of the Institution of Metallurgists, but candidates with Higher National Certificate in Metallurgy who have had industrial experience in steel-making by the electric-arc process, and have knowledge of heat-treatment and physical metallurgy, will also be considered.

Salary according to age, qualifications, and experience within range £495-£645 (male). Rates for women somewhat lower. Posts are unestablished.

Application forms obtainable from Ministry of Labour and National Service, Technical and Scientific Register (K), York House, Kingsway, London, W.C.2. Closing date 14 days after the appearance of this advertisement.

**NELSON RESEARCH LABORATORIES**, English Electric Co., Ltd., Stafford, have a vacancy for a **SENIOR RESEARCH METALLURGIST** with a First or Second Class Honours degree and with at least five years' research experience in physical metallurgy, welding, foundry metallurgy or powder metallurgy. The post involves the supervision of a group of graduates and assistants and applicants should have had experience in supervising experimental work. Salary according to qualifications. Position offers scope for advancement. House available for successful applicant if married. Apply giving age, qualifications and experience, mentioning ref. 244A, to Central Personnel Services, English Electric Co., Ltd., 24-30 Gillingham Street, London, S.W.1.

**SPECTROGRAPHER** required by Manchester Research Laboratory. Candidates must have industrial experience and a sound theoretical knowledge. Applications stating details of age, education, training, qualifications and positions held, to Secretary, Magnesium Elektron, Ltd., Clifton Junction, Nr. Manchester.

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### APPOINTMENT REQUIRED

**HONOURS GRADUATE**, aged 32, seeks post in Lancashire. 10 years' experience extractive metallurgy. Also interested in transportation as a hobby, but is not professionally qualified in this sphere. Box 300, Institute of Metals, 4 Grosvenor Gardens, London, S.W.1.

# THE INSTITUTE OF METALS

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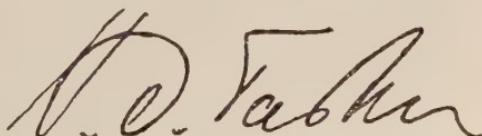
## A NEW YEAR MESSAGE FROM THE PRESIDENT

I am glad to have this opportunity of sending cordial greetings to all members of our Institute wherever they may be.

We have all, whatever our country, good reason for anxiety at the present time, but the increasing co-operation among men of goodwill must surely give grounds for confident hope that in good time our anxieties will be allayed. Our Institute will, I am sure, play its part in strengthening international friendships.

We, as Members, have our own particular anxiety in the difficult financial position into which the Institute has been forced by the circumstances of our times and which is explained elsewhere in this issue; but here again I am sure that the industries which we serve will help us to solve our problems.

Let us then look forward together to 1951 with sober confidence.



London.

December, 1950.

President.

## INSTITUTE NEWS AND ANNOUNCEMENTS

### APPEAL TO THE NON-FERROUS METAL INDUSTRIES FOR REGULAR FINANCIAL SUPPORT OF THE WORK OF THE INSTITUTE

The Institute of Metals has become a vital factor in the progress of the science and practice of non-ferrous metallurgy and, therefore, in the scientific welfare and advancement of all the industries concerned with the manufacture, treatment, and use of non-ferrous metals and their alloys. Its importance and achievements are well-known to numerous leaders in industry, many of whom are associated with its activities. There are doubtless many others, however, whose undertakings receive substantial direct or indirect benefit from its work but whose work is commercial and who therefore have little knowledge of what the Institute has done and is doing, to whom the Secretary will gladly send printed information briefly setting out details of the Institute's objects and services.

The Institute's work is paid for mainly by the personal subscriptions of its members, most of whom are scientific and technical men engaged in the industry or in universities, technical colleges, and research establishments. Before the war, with the aid of income from its Endowment Fund—built up by the efforts of past Presidents and by the generous donations of a number of industrial companies—the members were able to support the costs of the Institute's work. A considerable expansion of the Institute's activities has been necessary since the war, however, as a result of the growth in metallurgical technology, and this has coincided with heavy increases in the costs of its services and a reduced income from its investments, so that, in spite of an increase of one-third in the annual subscription in 1947, the members will be unable to support this important work without substantial financial assistance. The Institute's regular expenditure in 1949–50 was £25,660 as compared with £8179 in 1939–40.

Energetic steps have been taken by the Council to bridge the gap, not only by increasing the rate of subscription (as mentioned above) but also by expanding sources of revenue and exercising all reasonable economy consistent with the energetic prosecution of the Institute's work. In spite of this, the deficit on regular income is now about £2000 a year, and various items of cost must be expected to increase still further.

The Council believes that the rate of subscription cannot be raised further without increasing unduly the burden on members, especially the junior ones, and thus incurring a serious loss of membership. It sees no prospect of meeting expenses except by curtailing very seriously the present activities of the Institute, particularly the volume of its publications. Such a step would, in the Council's opinion, react seriously on the healthy progress of non-ferrous metallurgy and of the industries concerned, at a time when it is of vital importance that they should be vigorously developed.

It is believed that the industry will not wish the Institute to reduce the scale and effectiveness of its work or to draw continually on its accumulated funds and so create a situation which—already

## NEWS AND ANNOUNCEMENTS

becoming serious—would lead in the end to a financial crisis. It is felt, moreover, that the industry would not wish this important service—which has had, and still has, a long-term influence on its development and prosperity—to depend to so large an extent on the voluntary contributions of persons who are mainly employees in the industry and still less of those engaged in academic work. (It must be remembered that the Institute does not give a qualification to its members, whose subscriptions are devoted entirely to work which is of value not only to them but also to the general community.)

The Council has resolved, therefore, to appeal to the non-ferrous metal industries, in the widest sense, for regular financial support under covenants of not less than seven years, so that the Institute could recover income tax on the contributions so received. An additional income of not less than £5000 per annum is required to place the Institute in a reasonably safe position, to allow it to meet the increasing demands on its facilities for publication of original work, and to undertake without embarrassment such further activities as will promote its aims. The Council would prefer to receive contributions of moderate size from a large number of companies connected with the industry, rather than that subscriptions should be restricted to a small number of large sums, and it is hoped that all firms in the industry, both large and small, will welcome the opportunity to give their direct support to the Institute's work. Lists of subscriptions will be published from time to time in the Institute's *Journal* and in the Press.

The justification for the appeal, in the opinion of the Council, lies in the high scientific and technical value of the Institute's work, which is frequently of immediate—and nearly always of long-term—practical value.

The Council hopes that the companies engaged in the industry, as well as those in the "user" industries which benefit from its work, will not only respond generously to this appeal, but will also encourage as many as possible of the members of their technical staffs to join the Institute and to take an active part in its affairs. It is becoming more than ever important that such men shall be actively affiliated with the technical society of their industry and keep themselves up to date by studying the literature which it publishes for their benefit.

This appeal for regular financial support is being sent out only to companies whose works or headquarters are located in Great Britain. The Council would, however, welcome regular subscriptions from private individuals and also from any companies, located outside the British Isles, which value the work of the Institute and would like to take this opportunity to support it financially. The Secretary will be glad to send to any firm or individual interested a copy of a printed form of covenant for subscriptions in response to this appeal.

### "STUDENTS'" EDUCATIONAL TOUR, 1951

As previously announced, the Council is arranging an educational tour for "students" in the 1951 Easter Vacation. The tour—which will be organized on inexpensive lines and will start on Monday, 9 April, and end on Friday, 13 April 1951—will be open to all Junior Members and Student Members of the Institute

## NEWS AND ANNOUNCEMENTS

(whether actually "students" or not), accompanied by University and Technical College lecturers.

Every member of the tour will go to each of the works to be visited. The programme of visits (all of half-day duration, except where otherwise stated) is as follows: Anglo-Celtic Watch Co., Ltd., Ystradgynlais; aluminium sheet, strip and tube works of Imperial Chemical Industries, Ltd., Metals Division, at Waunarlwydd; copper refinery and rolling mills of Imperial Chemical Industries, Ltd., Metals Division, at Landore; nickel refinery of The Mond Nickel Co., Ltd., at Clydach; spelter works of the National Smelting Co., Ltd., at Llansamlet; new continuous strip mill of the Northern Aluminium Co., Ltd., at Rogerstone (all-day visit); blast furnaces of the Steel Company of Wales, Ltd., at Port Talbot.

Junior Members, Student Members, and Lecturers who hope to take part in this tour are requested (without obligation) to advise the Secretary to this effect as early as possible. The cost of the tour will be announced in due course; it is not expected to exceed £6 10s., inclusive of hostel accommodation, meals, gratuities, and transport to works.

## METALLURGICAL ABSTRACTS

The Editor would be interested to hear of any metallurgist with a knowledge of Italian who would be willing to undertake the abstracting of scientific and technical papers in that language.

## SYNOPSIS OF PAPERS

For the benefit of intending authors of papers for the *Journal*, there is published below a "Guide for the Preparation of Synopses", which has been drawn up by the Abstracting Services Consultative Committee as a result of a recommendation made at the Royal Society Scientific Information Conference in July 1948. The Guide was first published in the October 1949 issue of the *Journal*, and is reprinted now at the suggestion of the Publication Committee.

### *Guide for the Preparation of Synopses*

(1) *Purpose*.—It is desirable that each paper be accompanied by a synopsis, preferably appearing at the beginning. This synopsis is not part of the paper; it is intended to convey briefly the content of the paper, to draw attention to all new information, and to the main conclusions. It should be factual.

(2) *Style of Writing*.—The synopsis should be written concisely and in normal rather than abbreviated English. It is preferable to use the third person. Where possible use standard rather than proprietary terms, and avoid unnecessary contracting.

It should be presumed that the reader has some knowledge of the subject but has not read the paper. The synopsis should therefore be intelligible in itself without reference to the paper; for example, it should not cite sections or illustrations by their numerical references in the text.

(3) *Content*.—The title of the paper is usually read as part of the synopsis. The opening sentence should be framed accordingly and repetition of the title avoided. If the title is insufficiently

## NEWS AND ANNOUNCEMENTS

comprehensive the opening should indicate the subjects covered. Usually the beginning of a synopsis should state the objective of the investigation.

It is sometimes valuable to indicate the treatment of the subject by such words as: brief, exhaustive, theoretical, &c.

The synopsis should indicate newly observed facts, conclusions of an experiment or argument and, if possible, the essential parts of any new theory, treatment, apparatus, technique, &c.

It should contain the names of any new compound, mineral species, &c., and any new numerical data, such as physical constants; if this is not possible it should draw attention to them. It is important to refer to new items and observations, even though some are incidental to the main purpose of the paper; such information may otherwise be hidden though it is often very useful.

When giving experimental results the synopsis should indicate the methods used; for new methods the basic principle, range of operation, and degree of accuracy should be given.

(4) *Detail of Lay-Out.*—It is impossible to recommend a standard length for a synopsis. It should, however, be concise and should not normally exceed 200 words.

If it is necessary to refer to earlier work in the summary, the reference should always be given in the same manner as in the text. Otherwise references should be left out.

When a synopsis is completed, the author is urged to revise it carefully, removing redundant words, clarifying obscurities, and rectifying errors in copying from the paper. Particular attention should be paid by him to scientific and proper names, numerical data, and chemical and mathematical formulæ.

### RATES OF SUBSCRIPTION TO THE INSTITUTE

The rates of subscription to the Institute of Metals are given below, with, in parentheses, the reduced rates of subscription applicable to members of the Iron and Steel Institute or the Institution of Metallurgists. There is no entrance fee. Particulars of membership may be obtained from the Secretary, 4 Grosvenor Gardens, London, S.W.1.

Ordinary Members: £4 4s. (£3 13s. 6d.) p.a.

Junior Members: £2 15s. (£2 10s.) p.a.

Student Members: £1 15s. (£1 11s.) p.a.

### DISCUSSION OF PAPERS

In order to assist the Committee responsible for arranging the programmes of the General Meetings of the Institute, will all members who are prepared to discuss orally any of the papers published in the *Journal* please inform the Secretary as soon as possible.

It is hoped that such information will enable programmes to be arranged which will secure well-attended and lively discussions.

## NEWS AND ANNOUNCEMENTS

### PERSONAL NOTES

PROFESSOR J. H. ANDREW, who recently retired from the Chair of Metallurgy at Sheffield University, has been made an Emeritus Professor of the University.

MR. W. BARR, of Colvilles, Ltd., is to be awarded the Sir Robert Hadfield Medal for 1951 by the Iron and Steel Institute, in recognition of his contributions to research in steelmaking.

PROFESSOR C. S. BARRETT, Research Professor at the Institute for the Study of Metals, University of Chicago, has been awarded the Francis J. Clamer Medal of the Franklin Institute. The award is made at least once in five years for meritorious achievement in the field of metallurgy.

MR. J. M. BUTLER has left Cambridge University and is now an Investigator with the British Non-Ferrous Metals Research Association.

MR. J. H. DEDRICK has left Sylvania Electric Products, Inc., Long Island, and has been appointed manager of metallurgical research to Reynolds Metals Co., Louisville, Ky.

DR. C. H. DESCH has been elected an honorary life member of the Faraday Society, a new class of membership recently instituted to honour those of its members who have rendered outstanding services to the Society and to physical chemistry. He has also been made an Honorary Member of the Iron and Steel Institute.

DR. FRANCIS C. FRARY, Director of the Research Laboratories of the Aluminum Company of America, was honoured by his Alma Mater, the University of Minnesota, recently, when he was presented with its Outstanding Medal of Achievement.

DR. R. GENDERS, consultant metallurgist, has recently changed his address to 40 Grosvenor Gardens, London, S.W.1 (Telephone No : SLOane 0925 or 6218).

SIR CHARLES GOODEVE has been elected President of the Faraday Society.

MR. A. JAMIESON has left Argus Foundry Ltd., Thornliebank, and is now with Miller and Co., London Road Foundry, Edinburgh 6.

MR. F. O. JONES has left the A.E.I. Research Laboratory, Aldermaston, having been appointed Assistant Lecturer in Metallurgy at University College, Swansea.

MR. A. S. LADLEY has begun business on his own account in the new town of Crawley. His firm is A. S. Ladley and Co., Ltd., whose principal products will be liquid flow meters for the water supply industry and oil industry.

MRS. M. K. MCQUILLAN is returning to England from Australia at the end of December.

MR. K. PRIESTLEY has been appointed Assistant Manager of the Melbourne Works of Metters Pty., Ltd.

MR. R. W. ROBINSON is shortly returning to England after completing a period of duty at H.M. Dockyard, Malta, and is taking up an appointment at the Central Metallurgical Laboratory of the Admiralty, Emsworth, Hants.

## NEWS AND ANNOUNCEMENTS

MR. G. SHAW SCOTT has been elected President of the London Branch of the Guild of Graduates of Birmingham University.

MR. L. STANSFIELD has left the English Electric Co., Ltd., Stafford, to take up an appointment as Senior Metallurgist with the Steel Company of Wales, Ltd., Port Talbot, Glam.

MR. M. SWAROOP has left the Hind Metal Works, Ltd., Aligarh, India, and his address is now Lachhmansar, Amritsar, India.

DR. MAGNUS TIGERSCHIÖLD has been awarded the Carl Lueg Medal of the Verein Deutscher Eisenhüttenleute.

DR. D. R. F. WEST has taken up a post as Lecturer in the Department of Metallurgy, Imperial College of Science and Technology, London, S.W.7. He was formerly at the Armament Research Establishment, Woolwich.

MR. R. R. WILLAN has received the degree of B.Eng. with Honours in metallurgy of Liverpool University and has been appointed to a post at the Ministry of Supply Atomic Energy Factory at Springfield, near Preston.

MR. G. H. H. WILLIAMS has been awarded the degree of Ph.D. of the University of Wales for research carried out at University College, Swansea.

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*Note :* Will members (in addition to informing the Institute's administrative department of changes of address, occupation, &c.) kindly notify the Editor, *separately*, of all changes of occupation, appointments, award of honours and degrees, &c., as these matters interest their fellow-members.

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## NEWS OF LOCAL SECTIONS AND ASSOCIATED SOCIETIES

### SOUTH WALES LOCAL SECTION

At a meeting held at University College, Swansea, on 31 October, 1950, Dr. E. C. RHODES, of The Mond Nickel Co., Ltd., read a paper entitled :

#### THE PRECISION CASTING OF PRECIOUS METALS

To illustrate the principles underlying successful precision casting in precious metals, the speaker selected the use of investment casting by the lost-wax process for the production of jewellery. He traced in detail the more important steps in this process, commenting on the variations in manipulation for alloys of gold and silver of relatively low melting points compared with those of platinum and palladium of relatively high melting points.

Reference was made to complex jewellery designs, and it was shown how these could be successfully cast by attention to certain precautions, as was regular practice in other metal-casting operations.

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## NEWS AND ANNOUNCEMENTS

### OTHER NEWS

#### THE INSTITUTION OF METALLURGISTS

##### Examinations 1950

The Institution's examinations were held from 28 August to 4 September, 1950, at three centres in Great Britain, viz. Birmingham, Glasgow, and London. In addition, examinations were held in Canada, India, New Zealand, and South Africa. The following is the pass list :

##### *Associateship*

\*A. J. Birch (Coventry), \*L. H. Davenport (Wellington, N.Z.), \*G. B. Evans (Highcliffe), \*E. S. Harwood (Birmingham), \*V. L. James (Enfield), \*J. H. Kyle (Glasgow), \*J. McGrandle (Glasgow), D. R. McHarg (Glasgow), \*H. J. Proffitt (Taplow), \*D. Sommerville (Motherwell), \*A. Stuttard (Burnley).

The following candidates satisfied the Examiners in the Associateship Examination, but their election is deferred until they have been able to comply with the regulations in respect of age and/or experience.

\*J. E. S. Cockle (Beckenham), \*J. Cumberland (Chesterfield), \*R. H. T. Dixon (Birmingham), \*D. Jamieson (Nova Scotia, Canada), A. P. Miodownik (London), \*J. P. Moore (Liverpool), J. H. Proctor (Churchdown).

##### \* Licentiates.

##### *Licentiateship*

D. R. Andrews (Bristol), E. S. Bale (Balham), S. R. A. Langford (Birmingham), R. F. Lee (Birmingham), J. H. Proctor (Churchdown), E. A. Seal (North Wembley), D. White (Atherstone).

The following candidates satisfied the Examiners in the Licentiateship Examination, but their election is deferred until they have been able to comply with the regulations in respect of age and/or experience.

H. R. C. Chapman (Peterborough), D. C. Major (London), R. C. Perriton (Worcester Park).

#### DESIGN AND RESEARCH CENTRE FOR THE GOLD, SILVER, AND JEWELLERY INDUSTRIES

The new premises of the Design and Research Centre for the Gold, Silver, and Jewellery Industries at Goldsmiths' Hall, Foster Lane, London, E.C.2, were opened by Mr. Harold Wilson, President of the Board of Trade, on Wednesday, 15 November, 1950. In connection with the event a special exhibition was held and the chemical and metallurgical laboratories were open to inspection.

One wall of the exhibition was devoted to exhibits dealing with firestain in sterling silver, investment casting of jewellery, porosity in silversmith's sand castings, cast "Kirksite" dies for hollowware, and the production of jewellery stamping dies by investment casting.

In the metallurgical laboratory there were demonstrations of the hardness testing of metals and the vacuum evaporation of

## NEWS AND ANNOUNCEMENTS

metals for the embellishment of costume jewellery, compacts, and other products. Bright silver plating was demonstrated in the chemical laboratory.

### THE BRITISH INSTRUMENT INDUSTRIES' EXHIBITION

The first British Instrument Industries' Exhibition takes place at the National Hall, Olympia, from 4 to 14 July, 1951. It is supported by the British Electrical and Allied Manufacturers' Association, British Industrial Measuring and Control Apparatus Manufacturers' Association, British Lampblown Scientific Glassware Manufacturers' Association, Drawing Office Material Manufacturers' and Dealers' Association, and Scientific Instrument Manufacturers' Association of Gt. Britain, Ltd.

The purpose of the Exhibition is to show scientific and industrial instruments of entirely British manufacture, and, with the export market in mind, supporting Associations and the Organizers, Messrs. F. W. Bridges and Sons, Ltd., are approaching potential overseas buyers through all appropriate Government, commercial, and professional channels.

Members of the Associations which are giving their patronage and support to the Exhibition have a priority for reserving stand space, but, providing non-member firms have instruments that are germane to the Exhibition which they wish to exhibit, they may submit an application for space together with a description of their proposed exhibit to: British Instrument Industries' Exhibition, 641 Grand Buildings, Trafalgar Square, London, W.C.2. (WHItehall 0568.)

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## DIARY FOR FEBRUARY

### LOCAL SECTIONS MEETINGS

#### THURSDAY, 1 FEBRUARY

Birmingham Local Section.—N. H. Bacon: "The Application of Statistical Methods". (James Watt Memorial Institute, Great Charles Street, Birmingham, 3, at 6.30 p.m.)

#### TUESDAY, 6 FEBRUARY

South Wales Local Section.—M. Roddan: "Oil Fuel in the Non-Ferrous Metal Industries". (University College, Metallurgical Department, Singleton Park, Swansea, at 6.30 p.m.)

#### THURSDAY, 8 FEBRUARY

London Local Section.—E. W. Colbeck: "The Metallurgy of Uranium". (The Institute, 4 Grosvenor Gardens, London, S.W.1, at 7 p.m.)

#### MONDAY, 12 FEBRUARY

Scottish Local Section.—A. Dunlop: "Investment Precision Casting". (39 Elmbank Crescent, Glasgow, C.2, at 6.30 p.m.)

(*Official Visit of the President of the Institute*).

## NEWS AND ANNOUNCEMENTS

### THURSDAY, 22 FEBRUARY

**Birmingham Local Section.**—J. M. Robertson: “Metals for Gas Turbines”. (James Watt Memorial Institute, Great Charles Street, Birmingham, 3, at 6.30 p.m.)

**Sheffield Local Section.**—W. G. Smellie: “The Soldering and Brazing of Metals”. Joint Meeting with the Sheffield Branch of the Electrodepositors’ Technical Society. (Grand Hotel, Sheffield, at 6.30 p.m.)

### TUESDAY, 27 FEBRUARY

**South Wales Local Section.**—J. S. Walton: “Some Applications of X-Ray Crystallographic Methods to Quality Control in the Metallurgical Industry”. (University College, Metallurgical Department, Singleton Park, Swansea, at 6.30 p.m.)

## OTHER MEETINGS

### WEDNESDAY, 31 JANUARY

**Manchester Metallurgical Society.**—J. Preston: “The Metallurgy of Titanium”. (Engineers’ Club, Albert Square, Manchester, at 6.30 p.m.)

### THURSDAY, 1 FEBRUARY

**Leeds Metallurgical Society.**—E. C. W. Perryman: “Recent Developments in Metallurgy”. (Chemistry Department, The University, Leeds, 2, at 7 p.m.)

**Liverpool Metallurgical Society.**—A. W. Hothersall: “Electro-deposition for Engineering Purposes”. (Electricity Service Centre, Whitechapel, Liverpool, at 7 p.m.)

### TUESDAY, 6 FEBRUARY

**Electrodepositors’ Technical Society, Midlands Centre.**—J. Preston: “Jig Design”. (James Watt Memorial Institute, Great Charles Street, Birmingham, 3, at 6.30 p.m.)

### TUESDAY, 13 FEBRUARY

**Institute of Marine Engineers.**—L. W. Johnson and E. J. Bradbury: “Corrosion-Resistant Materials”. (85 Minories, London, E.C.3, at 5.30 p.m.)

### WEDNESDAY, 14 FEBRUARY

**Manchester Metallurgical Society.**—R. Toye: “Instrumentation of Steel-Making Furnace—Some of the Problems”. (Joint Meeting with the Iron and Steel Institute.) (Engineers’ Club, Albert Square, Manchester, at 6.30 p.m.)

### THURSDAY, 15 FEBRUARY

**Institution of Mining and Metallurgy.**—General Meeting. (The Geological Society, Burlington House, Piccadilly, London, W.1, at 5 p.m.)

## NEWS AND ANNOUNCEMENTS

### FRIDAY, 16 FEBRUARY

**Royal Institute of Chemistry, London and South Eastern Counties Section.**—W. H. J. Vernon: "Corrosion Processes and Their Prevention". (Brighton Technical College, at 7 p.m.)

**West of Scotland Iron and Steel Institute.**—K. G. Quicke: "Induction Heating for Forging". (39 Elmbank Crescent, Glasgow, C.2, at 6.45 p.m.)

### MONDAY, 19 FEBRUARY

**Electrodepositors' Technical Society, London Centre.**—A. Smart: "Factors Influencing the Design of Automatic Plating Plant". (Northampton Polytechnic, St. John Street, Clerkenwell, London, E.C.1, at 6 p.m.)

### TUESDAY, 20 FEBRUARY

**Iron and Steel Institute.**—Air Commodore Sir Frank Whittle: Fifth Hatfield Memorial Lecture "Turbine Problems in the Development of the Whittle Engine". (Caxton Hall, London, S.W.1, at 8.30 p.m.)

### WEDNESDAY AND THURSDAY, 21-22 FEBRUARY.

**Iron and Steel Institute.**—Symposium on High-Temperature Steels and Alloys from Gas Turbines. (Institution of Civil Engineers, Great George Street, London, S.W.1, at 10 a.m. and 2.30 p.m. each day).

[A detailed programme is available from the Secretary of the Iron and Steel Institute and members of the Institute of Metals are cordially invited to attend and take part in the discussions.]

### WEDNESDAY, 28 FEBRUARY

**Institute of British Foundrymen, London Branch.**—R. Dulche: "Valve Guide Castings". (Waldorf Hotel, Aldwych, London, W.C.2, at 7.30 p.m.)

**Manchester Metallurgical Society.**—W. Barr: "Clad Steels". (Engineers' Club, Albert Square, Manchester, at 6.30 p.m.)

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### APPOINTMENTS VACANT

**CAPPER PASS AND SON LTD.** (Bristol and Hull) require University-trained chemists and chemical engineers (under 35) for their research and development department. The Company smelt and refine low-grade and complex materials containing the heavy metals. The posts are permanent and pensionable. 1st or 2nd class honours' degree essential. Commencing salary £600/£900, according to experience. Apply to The Secretary, Capper Pass and Son Ltd., Bristol, England.

**DIE CASTING** (Pressure) Foundry Foreman required for South Wales plant producing large quantities aluminium castings. H.N.C. (Production or Mechanical) desirable, engineering apprenticeship, experience in this type of foundry in supervisory or planning and methods capacity essential. Salary £600 to £750; accommodation available. Write details of age, education, and experience to Box 302, Institute of Metals, 4 Grosvenor Gardens, London, S.W.1.

**METALLURGICAL SOCIETY** requires male editorial assistant. It is intended that this post shall lead to a position of responsibility. Requirements: a degree in metallurgy, physics, or chemistry; knowledge of French and German. Experience not essential. Superannuation scheme. Applications with details of qualifications and salary required to Box 299, Institute of Metals, 4 Grosvenor Gardens, London, S.W.1.

**SPECTROGRAPHER** required by Manchester Research Laboratory. Candidates must have industrial experience and a sound theoretical knowledge. Applications stating details of age, education, training, qualifications and positions held, to Secretary, Magnesium Elektron, Ltd., Clifton Junction, Nr. Manchester.

# *Metallurgical Applications of the ELECTRON MICROSCOPE*

This book contains 13 papers presented at a Symposium on the subject, together with a report of a general discussion that took place upon them. Some of the papers summarize the present state of knowledge and experience in Great Britain, France, Germany and the United States, but others record the results of hitherto unpublished researches. The discussion contains important contributions from metallurgists and from leading authorities in the field of electron microscopy.

Besides being of value to all physicists and metallurgists working in this field, the book gives a most useful introduction to the subject for those who wish to know the potentialities and limitations of this comparatively new technique.

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This symposium on metallurgical aspects of the subject consists of the following six papers by recognized authorities and a full report of an important discussion held at a meeting attended by nearly 400 metallurgists. The papers are "Melting and Casting of Non-Ferrous Metals", by G. L. Bailey and W. A. Baker; "The Production of Refined-Copper Shapes", by R. H. Waddington; "Melting and Casting Aluminium Bronze Ingots for Subsequent Working", by A. J. Murphy and G. T. Callis; "The Application of Flux Degassing to Commercially Cast Phosphor-Bronze", by N. I. Bond Williams; "The Melting and Casting of Brass", by Maurice Cook and N. F. Fletcher; "The Melting and Casting of Nickel Silver at the Works of Henry Wiggin and Co Ltd.", by E. J. Bradbury and P. G. Turner.

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**THE INSTITUTE OF METALS**  
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# THE INSTITUTE OF METALS

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## INSTITUTE NEWS AND ANNOUNCEMENTS

### ANNUAL GENERAL MEETING, LONDON, 13, 14, AND 15 MARCH 1951

The 1951 Annual General Meeting will be held in London on Tuesday, Wednesday, and Thursday, 13, 14, and 15 March. The meetings on the first two days will be at the Park Lane Hotel, Piccadilly, W.1, while the concluding session of the meeting on the morning of Thursday, 15 March will be at the Institute's headquarters, 4 Grosvenor Gardens, S.W.1.

#### PROGRAMME.

*Tuesday, 13 March.*

*Location* (all day) : Park Lane Hotel, Piccadilly, W.1.

10.30 a.m. Business meeting.

Report of Council.

Report of the Honorary Treasurer.

Report on Election of Officers for 1951-52.

Induction of the new President, Professor A. J. Murphy, M.Sc., F.I.M.

PRESIDENTIAL ADDRESS.

12.0 noon. Adjournment ; drinks will be served in an ante-room.

1.0 p.m. Luncheon (tickets 18s. 6d., including coffee and gratuities).

Presentation of the Institute of Metals (Platinum) Medal ; the W. H. A. Robertson Medal ; and the Walter Rosenhain medal.

2.45 p.m. Adjournment.

3.0 p.m. Scientific session. Discussion of the following papers :

(1) HOAR and BUTLER : "The Influence of Oxide on the Pressing and Sintering of Copper Compacts". (*Journal*, 1950, Dec., No. 1283).

4.0 p.m. (2) GILL, SMITH, and HARRINGTON : "Stress-Ageing Treatment and its Effects on the Physical Properties of Copper-, Iron-, and Aluminium-Base Alloys". (*Journal*, 1950, Nov., No. 1277).

5.0 p.m. Adjournment.

## NEWS AND ANNOUNCEMENTS

*Wednesday, 14 March.*

*Location* (all day) : Park Lane Hotel, Piccadilly, W.1.

10.0 a.m. SYMPOSIUM ON "METALLURGICAL ASPECTS OF THE COLD WORKING OF NON-FERROUS METALS AND ALLOYS". A general discussion, based on the following papers, published in the *Journal*, 1951, Jan., Nos. 1286-1290 :

- (1) COOK and RICHARDS : "Fundamental Aspects of the Cold Working of Metals".
- (2) CHISHOLM : "Lubricants for the Cold Working of Non-Ferrous Metals".
- (3) DAVIES : "The Cold Rolling of Non-Ferrous Metals in Sheet and Strip Form".
- (4) CLEAVER and MILLER : "Wire-Drawing Technique and Equipment".
- (5) JEVONS : "The Deep Drawing and Pressing of Non-Ferrous Metals and Alloys".

12.45 p.m. Adjournment.

2.30 p.m. Symposium resumed.

5.0 p.m. Adjournment (symposium concluded).

*Thursday, 15 March.*

*Location* : 4 Grosvenor Gardens, S.W.1.

10.0 a.m. Scientific session. Discussion of the following papers :

(1) Jointly : THALL and CHALMERS : "Modification in Aluminium-Silicon Alloys" (*Journal*, 1950, March, No. 1242), and RANSLEY and NEUFELD : "The Solubility Relationships in the Aluminium-Sodium and Aluminium-Silicon-Sodium Systems" (*Journal*, 1950, Sept., No. 1268).

11.15 a.m. (2) Jointly : CHANG and SWIFT : "Shearing of Metal Bars" (*Journal*, 1950, Oct., No. 1273); and CHANG : "Shearing of Metal Blanks" (*Journal*, 1950, Dec., No. 1284).

12.30 p.m. Conclusion of meeting.

### DISCUSSION ON INTERNAL FRICTION OF SOLIDS, LONDON, THURSDAY, 15 MARCH

The Council has accepted an invitation for members of the Institute of Metals to take part in a discussion on internal friction of solids, to be organized by the Acoustics Group of the Physical Society. The Metal Physics Committee will co-operate with the organizers to help in making this meeting a success.

The meeting will be held at the headquarters of the Institute of Metals, 4 Grosvenor Gardens, London, S.W.1, on the afternoon of Thursday, 15 March, after the conclusion of the Institute's Annual General Meeting.

The short papers or addresses on which this discussion will be based will be invited by the Acoustics Group of the Physical Society. Members who wish to have more detailed particulars of the meeting, or who wish to take part in the discussion, should

## NEWS AND ANNOUNCEMENTS

communicate direct with Mr. W. A. Allen, Joint Honorary Secretary, Acoustics Group, The Physical Society, 1 Lowther Gardens, Prince Consort Road, London, S.W.7.

### 1952 SYMPOSIUM ON " PROPERTIES OF METALLIC SURFACES "

On instructions of the Council, the Metal Physics Committee is organizing a symposium on "Properties of Metallic Surfaces", to be held in London in the late autumn or winter of 1952.

The following authors have been invited and have agreed to prepare papers which will, it is hoped, be published well in advance of the date of the meeting, to stimulate discussion:

- (1) TOLANSKY, Professor S., on specialized optical techniques for the examination of surfaces.
- (2) OLIVER, Mr. D. A., on the effects of machining and grinding methods on the profile of metal surfaces.
- (3) BRAGG, Professor Sir Lawrence, on the crystalline character of polished surfaces and the fundamentals of polished and work-hardened metal surfaces.
- (4) BARWELL, Dr. F. T., on the effect of lubrication and the nature of the superficial layer after long periods of running.
- (5) ANDRADE, Professor E. N. da C., on the effect of surface condition on the mechanical strength of ductile single crystals.
- (6) GURNEY, Professor C., on the effect of surface condition on the strength of brittle materials.
- (7) BARDGETT, Mr. W. E., on the effect of surface treatments and surface stresses on the fatigue strength of steel.
- (8) BOWDEN, Dr. F. P., on the effect of surface condition on friction.
- (9) JENKINS, Dr. Ivor, on properties of diffusion coatings, with reference to engineering practice.
- (10) GEORGE, Mr. C. W., on the effect of anodizing and similar treatments of light alloys.
- (11) EVANS, Dr. U. R., on the effects of engineering methods of preparation on the corrosion of metal surfaces.
- (12) LOWERY, Dr. H., on the effect of surface preparation on the optical properties of surfaces.
- (13) PIPPARD, Mr. A. B., and Mr. R. G. CHAMBERS, on the effect of method of preparation on the surface resistivity of metallic specimens.
- (14) SIMNAD, Dr. M. T., on the reactivity of metal surfaces in ionic solutions, using radioactive-tracer techniques.

### SYMPOSIUM ON " EQUIPMENT FOR THE THERMAL TREATMENT OF NON-FERROUS METALS AND ALLOYS ", MARCH 1952

The Metallurgical Engineering Committee is organizing a Symposium on "Equipment for the Thermal Treatment of Non-Ferrous Metals and Alloys", in connection with the 1952 Annual General Meeting.

### INFORMAL MEETINGS ON METAL-WORKING PROCESSES

The Council has approved a recommendation of the Metallurgical Engineering Committee that small local informal meetings

## NEWS AND ANNOUNCEMENTS

should be organized by the Institute on metal-working processes, including equipment.

Members who are interested in this decision are requested to communicate with the Secretary.

### PAPERS FOR THE "JOURNAL": ECONOMY IN ILLUSTRATIONS

In view of the continually increasing costs of block-making, printing, and binding—especially of half-tone illustrations and plates, for which the costs are particularly heavy—the Publication Committee requests authors of papers very critically to examine the MSS. of their papers before sending them for the Committee's consideration, to ensure that they do not contain illustrations which are not essential to the appreciation of the results or arguments put forward.

### MEMBERSHIP DEVELOPMENT

Members are invited to take every possible step to increase the membership of the Institute. A new, attractively-produced, 4to pamphlet entitled "The Institute of Metals: Particulars of its Objects, Work, and Membership" has been issued, and copies will gladly be sent by the Secretary to any members who wish to receive them or to persons whom members would like invited to join the Institute.

In connection with membership development, a card-index has been prepared classifying the members by firms, institutions, &c. Members who wish to take steps to increase the membership in any particular firm, works, or institution are requested to ask the Secretary for information from the card-index.

### "OVER-AGE" STUDENTS

The Council has resolved to continue, for at least a further year, the existing authority for the acceptance as Student Members of students attending recognized full-time courses of study at universities or technical colleges, without regard to age-limit.

Student Members have all the privileges of full membership, including the receipt of the *Journal*, &c., except the power to vote at General Meetings of the Institute. The annual membership fee for Student Members is £1 15s. p.a. (U.S. \$5.10), or £1 11s. (U.S. \$4.54) in the case of those who are members of the Iron and Steel Institute or the Institution of Metallurgists.

### CO-OPERATION BETWEEN EUROPEAN METALLURGICAL SOCIETIES

As a result of discussions that took place in Paris in October 1950 between representatives of certain metallurgical societies, arising from suggestions made by Dr. Richard Seligman in an address to the Société Française de Métallurgie in 1949 (see *Journal*, March 1950, p. 112), the Council has appointed Professor A. J. Murphy, M.Sc., to represent the Institute in further discussions being arranged to study and report in what ways co-operation is practicable between European metallurgical societies. The meetings, as previously, will be convened by the Council of the Société Française de Métallurgie.

## NEWS AND ANNOUNCEMENTS

### INDEXES TO METALLURGICAL ABSTRACTS

The Name and Subject Indexes to *Metallurgical Abstracts*, 1948-49, Vol. 16, have now been printed and distributed to all members and subscribers entitled to receive them. It is regretted that the appearance of these indexes has been delayed owing to shortage and changes of staff, and it is hoped that the indexes to Vol. 17 will be published much more quickly.

### BINDING CASES FOR 1948-49

The issue of the indexes to *Metallurgical Abstracts*, noted above, completes the Institute's publications for 1948-49, and it is now possible for members to bind the *Journal*, vol. 75, and *Metallurgical Abstracts*, vol. 16. Binding cases for these volumes will shortly be available, and will be sent free to all members and subscribers requesting them. Those who wish to receive the cases but have not already made application for them should write to the Secretary without delay.

Binding cases for 1945, 1946, 1947, and 1948 are also available and will be gladly sent, free of cost, on application to the Secretary.

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### ELECTION OF ORDINARY MEMBERS, JUNIOR MEMBERS, AND STUDENT MEMBERS

The following 13 Ordinary Members, 4 Junior Members, and 18 Student Members were elected on 29 December 1950:

#### *As Ordinary Members*

- BOURNE, Leonard, B.Met., Metallurgist, The British Iron and Steel Research Association, Hoyle Street, Sheffield 3.  
BROWN, Tom, Director, The Sheepbridge Company, Ltd., Sheepbridge Works, Chesterfield, Derbyshire.  
COBB, Keith Loveland, Managing Director, H. J. Enthoven and Sons, Ltd., 89 Upper Thames Street, London, E.C.4.  
FREEMAN, J. W., B.S., M.S.E., Ph.D., Associate Professor and Research Engineer, Engineering Research Institute, University of Michigan, Ann Arbor, Mich., U.S.A.  
HAFSTAD, Magne, Works Manager, AB Svenska Aluminium-kompaniet, Box 194, Sundsvall, Sweden.  
MAKOW, Victor Georges, Dr.-Ing., Consulting Engineer, Serrano 7, Madrid, Spain.  
MILLER-HALLETT, George, B.A., Partner, Hallett and Son, 202 Rotherhithe Street, London, S.E.16.  
MOUDGILL, J. N., B.A., B.Sc., Officiating Professor, Department of Mechanical Engineering, University of Roorkee, Roorkee (U.P.), India.  
PATERSON, Kenneth, A.M.C.T., Company Director, 189 Parrs Wood Road South, Manchester 20.  
PINTO, Norman P., S.B., Senior Engineer, Sylvania Electric Products, Inc., Bayside, Long Island, N.Y., U.S.A.  
SCHWARZ, Hanns, Managing Director, Rau-Metallwerk-Gesellschaft, Kistlerhofstrasse 70, Munchen 25, Germany.  
SHALER, Amos Johnson, D.Sc., Scientific Liaison Officer, Office of Naval Research, United States Embassy, 34 Grosvenor Square, London, W.1.

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SMITH, Richard Fox, Mechanical Engineering Inspector,  
"Savages", Mizen Way, Cobham, Surrey.

### *As Junior Members*

HEATH, Alfred Russell, B.Sc., Bursar, British Non-Ferrous Metals Research Association, Euston Street, London, N.W.1.  
HUNT, James Bernard, A.M.C.T., Metallurgist, Bahrein Petroleum Company, Ltd., Awali, Bahrein Island, Persian Gulf.  
LANGFORD, Sydney Reginald Arthur, Research Metallurgist, James Booth and Co., Ltd., Argyle Street, Nechells, Birmingham 7.  
THACKRAY, Frederick Kenneth, Assistant Metallurgist, McKechnie Brothers, Ltd., Rotton Park Street, Birmingham 16.

### *As Student Members*

BADER, Michael Geoffrey, Apprentice Metallurgist, de Havilland Aircraft Company, Ltd., Hatfield, Herts.  
BOOTHE, James A., Student of Metallurgy, University of Toronto, Canada.  
BUCKLOW, Ian Alfred, B.A., Student of Metallurgy, Cambridge University.  
CAMPBELL, Graeme H., Student of Metallurgy, Cambridge University.  
CAWTHORNE, Clifford, Student of Metallurgy, Sheffield University.  
COLE, Michael, Student of Metallurgy, Cambridge University.  
EDGE, Arthur Moore, Student of Metallurgy, Sheffield University.  
HAINS, Jack Whitby, B.A., Student of Metallurgy, Cambridge University.  
HOLLINGBERY, Desmond Robert, Student of Metallurgical Engineering, University of Toronto, Canada.  
HUTCHISON, Peter, Laboratory Assistant, The Mond Nickel Co., Ltd., Development and Research Department, Wiggin Street, Birmingham 16.  
MARTIN, John Wilson, B.A., Student of Metallurgy, Cambridge University.  
MORGAN, William Austin, B.Sc., Research Student, Cambridge University.  
MORTIMER, Ian Grant, Student of Metallurgy, Cambridge University.  
ROWE, William Moseley, Student of Metallurgy, University College, Cardiff.  
SHAKESPEARE, Alan Gough, B.A., Student of Metallurgy, Cambridge University.  
THOMAS, Gareth, Student of Metallurgy, University College, Cardiff.  
WEST, John, Student Naval Architect, 10 Carter Avenue, Hebburn, Co. Durham.  
WILCOCK, Jack, Student of Metallurgy, Liverpool University.

## MEMBERSHIP OF THE INSTITUTE

The total membership of the Institute on 31 December 1950 was 3579, of whom 1037 were resident outside the British Isles.

## NEWS AND ANNOUNCEMENTS

### PERSONAL NOTES

MR. F. W. J. BAILEY has been transferred from the Development and Research Department of The Mond Nickel Co., Ltd., to the Hot-Rolling Department of Henry Wiggin and Co., Ltd., Birmingham, where he is Technical Assistant to the Manager.

MR. R. B. DAVIES has left the Research Department of British Insulated Callender's Cables, Ltd., Shepherds Bush, and has returned to Australia.

MR. A. G. DUCE is now employed at the works of Joseph Lucas Ltd., Wood Top, Burnley.

MR. B. FULLMAN, of the British Non-Ferrous Metals Research Association, recently visited America as a member of a European mission sent by O.E.E.C. to study documentation techniques.

MR. S. K. GHASWALA has been elected a member of the American Society of Mechanical Engineers. He has also been elected a Vice-President of the Indian Science News Association for 1950-51.

MR. D. N. GIFFORD has left the Birmingham Office of the Electric Furnace Co., Ltd., and gone to the Head Office of the firm at Weybridge, Surrey.

SIR WILLIAM GRIFFITHS has resigned his Chairmanship of the Mond Nickel Co., Ltd.

MR. T. M. HERBERT, formerly Research Manager to the L.M.S. Railway, has been appointed Director of the Research Department of British Railways into which the research facilities of the various railway regions have now been combined.

MR. EDGAR HOLLAND has been appointed editor of *Metallurgia* in succession to Mr. C. A. Otto, who is retiring. Mr. Holland was previously a metallurgist with Metropolitan-Vickers Electrical Co., Ltd., Manchester.

DR. W. HUME-ROTHERY was awarded the O.B.E. in the New Year Honours List.

HERR HANS KOENIG has now returned to Switzerland after a visit to South Wales.

MR. R. D. MOELLER has left the Los Alamos Scientific Laboratories, having been appointed Research Engineer with the Atomic Energy Research Division of North American Aviation Inc., Downey, Calif.

MR. F. D. L. NOAKES has left the Rhodesia Copper Refineries, Ltd., Nkana, and joined the staff of the Rhokana Corporation Ltd., Nkana, as metallurgist in the Central Laboratory.

MR. C. A. OTTO has retired from the editorship of *Metallurgia*, which he had held since its foundation in 1929, though he will continue to take an interest in the magazine. His address is now 51 Rosebery Avenue, South Shields.

MR. J. J. PICK has been appointed a Research Fellow in Industrial Metallurgy in the University of Birmingham.

MR. L. ROTHERHAM has left the Royal Aircraft Establishment, Farnborough, and is now at the Ministry of Supply, Atomic Energy (Production) Division, Risley, Warrington, Lancs.

## NEWS AND ANNOUNCEMENTS

MR. H. O. SMALDON, Head of the Public Relations Department of the Metals Division of Imperial Chemical Industries, Ltd., retired at the end of 1950. He had been connected with the firm since 1912, when he joined the staff of Nobel Industries, Ltd., Ardeer.

DR. C. SYKES has been appointed Deputy Managing Director of Thos. Firth and John Brown, Ltd.

MR. T. HENRY TURNER has been appointed Superintendent of the Metallurgy Division of the Research Department of British Railways, with headquarters at Derby. Mr. Turner was previously Chief Chemist and Metallurgist, Mechanical and Electrical Engineering Department, Railway Executive, Doncaster.

MR. D. V. WILSON has been appointed Lecturer in Industrial Metallurgy in the University of Birmingham.

### DEATHS

The Editor regrets to announce the deaths of :

LIEUT.-COLONEL SIR JOHN HENRY MAITLAND GREENLY, K.C.M.G., C.B.E., M.A., at his home near Reading on 31 December 1950, aged 65. Sir John, who until recently was Chairman of Babcock and Wilcox, Ltd., served as President of the Institute from 1942 to 1944, and was subsequently elected a Fellow of the Institute. He was awarded the Institute of Metals (Platinum) Medal in 1946.

MR. COLIN CUNNINGHAM SCOTT, lately Chairman of Scott's Shipbuilding and Engineering Co., Ltd., Greenock.

MR. HERBERT CARR-WALKER, Governing Director of Yorkshire Engineering Supplies, Ltd., Leeds. He had been a member of the Institute since 1910.

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Note : Will members (in addition to informing the Institute's administrative department of changes of address, occupation, &c.) kindly notify the Editor, *separately*, of all changes of occupation, appointments, award of honours and degrees, &c., as these matters interest their fellow-members.

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## NEWS OF LOCAL SECTIONS AND ASSOCIATED SOCIETIES

### SOUTH WALES LOCAL SECTION

At a meeting held at University College, Swansea, on 21 November 1950, Mr. A. W. Hothersall of the Armament Research Department, Woolwich, read a paper entitled :

#### *Electrodeposition for Engineering Purposes.*

The introductory part of the lecture dealt with the properties and common defects of electrodeposited metals, with special reference to nickel and chromium—the two coatings most generally deposited for engineering purposes. The factors controlling adhesion were considered in some detail, and the

## NEWS AND ANNOUNCEMENTS

high values possible between nickel and many metals of engineering construction were explained in terms of the method of growth of electrodeposits on clean metal surfaces. Examples were given of the good mechanical properties of nickel and copper which could be obtained with proper control of the electrodeposition process. The effect of electrodeposited coatings in reducing the fatigue strength of steels was shown to have some relationship to the amount of stress in the coating, but the condition of the surface of both deposit and steel was also stated to be important; methods of minimizing the extent of the reduction in fatigue limit were mentioned.

The second part of the lecture dealt with various applications, which were classified in accordance with the purpose of the coating. Four classes were described, selected applications being illustrated with lantern slides: (a) coatings, generally thin, applied to change the properties of the surface, e.g. to harden the surface or to reduce its coefficient of friction, to improve its bearing or lubricating qualities, to prevent oxidation or corrosion; (b) deposits, generally thick, applied to replace metal lost by wear or over-machining; (c) electrodeposition as a manufacturing process (electroforming); and (d) miscellaneous applications.

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## JOINT ACTIVITIES

### MOND NICKEL FELLOWSHIPS

The Mond Nickel Fellowships Committee has announced the following awards of travelling fellowships for 1950:

MR. D. ALEXANDER (University of Otago, New Zealand) to study industrial technique and the application of research to metallurgical control in Great Britain, with special reference to tinning, plating, enamelling, and other surface-finishing processes.

MR. F. R. H. ALLON (John I. Thornycroft and Co., Ltd.).  
Programme not yet decided.

MR. K. W. J. BOWEN (Cambridge University) to study factors affecting the selection of materials for the construction of chemical and petroleum plant in the U.S.A. and Canada, with particular reference to the influence of research in this field.

MR. M. G. GEMMILL (United Steel Companies Ltd.) to study in Britain, the U.S.A., and Canada, the manufacture, testing, and application of steels for high-temperature service.

MR. W. B. HALL (Nchanga Consolidated Copper Mines Ltd., Northern Rhodesia) to study American and Canadian plant practice in the hydrometallurgy and electrowinning of base metals, with special reference to copper and its associate metals, and to make a general study of mechanization and plant management in ore dressing and leaching plants.

The Mond Nickel Fellowships Committee will, at a later date, invite applications for awards for 1951. Full particulars of the Fellowships can be obtained from the Secretary, Mond Nickel Fellowships Committee, 4 Grosvenor Gardens, London, S.W.1.

## NEWS AND ANNOUNCEMENTS

### OTHER NEWS

#### PHYSICAL SOCIETY EXHIBITION

The Physical Society's 35th Annual Exhibition of Scientific Instruments and Apparatus will be held from Friday, 6 to Wednesday, 11 April 1951, excluding Sunday.

This year both the Royal College of Science Main Building, Imperial Institute Road, and the Huxley Building, Exhibition Road (opposite the Science Museum), will be used. On Friday morning the Exhibition will be open for Members of the Society and the Press only, and all tickets will be valid for entry into both buildings.

This Exhibition takes place before the opening of the Festival of Britain, but physicists from abroad who intend to visit the latter may like to make arrangements to come to England earlier, as the Exhibition affords one of the most important displays of scientific achievement which is held in Great Britain and is unique in showing side by side the work of academic scientists, commercial instrument makers, and research workers in Government and other laboratories. It will also provide a convenient opportunity for conversations and contacts with technical representatives of British firms and associations.

Discourses will be delivered by eminent scientists on four days of the Exhibition, and the prize-winning models of the Society's Craftsmanship and Draughtsmanship Competition will be on show. This Competition, which is open to apprentices and others under the age of 22 years, is organized to stimulate the interest of young craftsmen and draughtsmen in industrial firms, technical colleges, and Government departments.

A Handbook of the Exhibition, containing full descriptions of all exhibits, will be obtainable from the Physical Society early in March.

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### DIARY FOR MARCH

#### THE INSTITUTE

Annual General Meeting. Wednesday, Thursday, and Friday, 13, 14, and 15 March 1951. For details, see pp. 39-40.

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#### LOCAL SECTIONS MEETINGS

##### THURSDAY, 1 MARCH

Birmingham Local Section.—Dr. G. E. Gardam: "Polishing of Metals". (James Watt Memorial Institute, Great Charles Street, Birmingham 3, at 6.30 p.m.)

##### FRIDAY, 2 MARCH

Birmingham Local Section.—All-day Symposium. (Central Technical College, Birmingham.)

## NEWS AND ANNOUNCEMENTS

### MONDAY, 12 MARCH

Scottish Local Section.—Annual General Meeting. (Institution of Engineers and Shipbuilders in Scotland, 39 Elmbank Crescent, Glasgow, C.2, at 6.30 p.m.)

### THURSDAY, 15 MARCH

London Local Section.—J. Bailey: "The Wetting of Metal Surfaces". (4 Grosvenor Gardens, London, S.W.1, at 7 p.m.)

### TUESDAY, 20 MARCH

South Wales Local Section.—Annual General Meeting. Films of Metallurgical Interest. (University College, Metallurgical Department, Singleton Park, Swansea, at 6.30 p.m.)

### THURSDAY, 22 MARCH

Birmingham Local Section.—C. J. Moss: "Adhesives for Metals". (James Watt Memorial Institute, Great Charles Street, Birmingham 3, at 6.30 p.m.)

Sheffield Local Section.—Annual General Meeting. Films. (Grand Hotel, Sheffield, at 6.30 p.m.)

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## OTHER MEETINGS

### THURSDAY, 1 MARCH

Leeds Metallurgical Society.—Brains Trust. (Chemistry Department, The University, Leeds 2, at 7 p.m.)

### TUESDAY, 6 MARCH

Electrodepositors' Technical Society, Midlands Centre.—C. Wharrad in the Chair: "Practical Platers' Forum". (James Watt Memorial Institute, Great Charles Street, Birmingham 3, at 6.30 p.m.)

### THURSDAY, 8 MARCH

Institution of Mechanical Engineers, Scottish Branch.—J. F. B. Jackson: "Modern Foundry Practice". (Royal Technical College, Glasgow, C.1, at 7.30 p.m.)

Liverpool Metallurgical Society.—Professor H. O'Neill: "Atomic Structure and the Hardness of Metals". (Lecture Theatre, Electricity Service Centre, Whitechapel, Liverpool, at 7 p.m.)

### SATURDAY, 10 MARCH

Institution of Production Engineers, Yorkshire Graduate Section.—A. E. McRae-Smith: "Foundry Production Problems in Relation to Casting Designs". (Great Northern Station Hotel, Leeds 1, at 2.30 p.m.)

### TUESDAY, 13 MARCH

Institute of Marine Engineers.—J. D. Hislop: "Practical Application of Gamma Radiography". (The Institute, 85 Minories, London, E.C.3, at 5.30 p.m.)

## NEWS AND ANNOUNCEMENTS

### WEDNESDAY, 14 MARCH

**Institution of Production Engineers, Western Section.**—A. Short: "Industrial Applications of the Lost-Wax Process". (Grand Hotel, Broad Street, Bristol, at 7.15 p.m.)

**Manchester Metallurgical Society.**—H. G. Dale: "Precious Metals in Industry". (Engineers' Club, Albert Square, Manchester, at 6.30 p.m.)

### THURSDAY, 15 MARCH

**Institution of Mining and Metallurgy.**—General Meeting. (Geological Society, Burlington House, Piccadilly, London, W.1, at 5 p.m.)

### SATURDAY, 17 MARCH

**Swansea and District Metallurgical Society.**—N. H. Polakowski: "Theory, Experiment, and Practice of Sheet and Strip Rolling". (Central Library, Swansea, at 6.30 p.m.)

### MONDAY, 19 MARCH

**Electrodepositors' Technical Society, London Centre.**—L. A. J. Lodder: "The Production of Zinc Alloy Die-Castings, with Particular Reference to Requirements for Finishing". (Northampton Polytechnic, St. John Street, London, E.C.1, at 6 p.m.)

### TUESDAY, 27 MARCH

**Institution of Production Engineers, South Wales and Monmouthshire Section.**—Dr. J. D. Jevons: "Defects and Developments in Deep Drawing and Pressing". (South Wales Institute of Engineers, Park Place, Cardiff, at 6.45 p.m.)

### WEDNESDAY, 28 MARCH

**Institute of British Foundrymen, London Branch.**—F. Hudson: "Brass Foundry Production Methods in the U.S.A.", with a film on "The Brass Trail". (Waldorf Hotel, Aldwych, London, W.C.2, at 7.30 p.m.)

## APPOINTMENTS VACANT

**CAPPER PASS AND SON, LTD.**, (Bristol and Hull), require University-trained chemists and chemical engineers for their research and development department (under 35). The Company smelt and refine low-grade and complex materials containing the heavy metals. The posts are permanent and pensionable. 1st or 2nd class honours degree essential. Commencing salary £600-£900, according to experience. Apply to The Secretary, Capper Pass and Son, Ltd., Bristol, England.

**CHEMIST** possessing degree or equivalent with knowledge of organic chemistry required for investigations in relation to control and development of works processes. Full details of career and salary required to the Personnel Manager, Northern Aluminium Co., Ltd., Banbury.

**DEPUTY CHIEF METALLURGIST** required by the Division of Atomic Energy (Production) to be responsible for the layout of development laboratories, including large-scale and pilot-plant and small-scale laboratory facilities at Springfields, Salwick, Nr. Preston. Responsibilities will eventually involve the control of these facilities and the development of processes.

Candidates must have an honours degree in either metallurgy, chemistry, physics, or engineering and preferably have had research experience in industrial metallurgy or engineering. Alternatively, they must have either associateship of the Institution of Metallurgists, the Royal Institute of Chemistry, or the Institute of Physics, corporate membership of the Institution of Chemical or Mechanical Engineers, or equivalent qualifications, together with several years' experience in directing the operation and development of metallurgical processes.

Salary will be assessed according to qualifications and experience within the range £1240-£1750 p.a. A superannuation scheme will be introduced shortly. Applications to Ministry of Supply, D.At.Eng.(P), Risley, Nr. Warrington, Lancs.

## NEWS AND ANNOUNCEMENTS

**ENGINEER OR METALLURGIST** aged between 20 and 30 with some experience in powder metallurgy required by large organization concerned with manufacture of diamond tools in Johannesburg. Salary £700-£1000, according to qualifications. Further details and preliminary interview can be had in London. Box No. 303, Institute of Metals, 4 Grosvenor Gardens, London, S.W.1.

**EXPERIMENTAL AND ASSISTANT EXPERIMENTAL OFFICERS** required by the Division of Atomic Energy (Production), Springfield Factory, Salwick, Nr. Preston, to carry out experimental work arising from the metallurgical development involved in the production of atomic energy.

Candidates must have Higher School Certificate or equivalent qualification, and preferably have some knowledge of metallurgical methods of investigation. A science degree or equivalent qualification would be an advantage. Candidates for Experimental Officer posts must be at least 28 years of age.

Salary will be assessed according to qualifications and experience within the range £195-£645 p.a. (Experimental Officers) and according to age within the range £220-£460 p.a. Rates for women are somewhat lower. Applications to Ministry of Supply, D.A.T.E.N.(P), Risley, Nr. Warrington, Lancs, stating post applied for.

**FUNDAMENTAL RESEARCH.** Physical Metallurgists with good Honours degrees and considerable experience required for permanent posts in a fundamental Research Laboratory. Apply in writing to Manager, Associated Electrical Industries, Aldermaston Court, Nr. Reading, Berks.

**METALLURGIST** possessing degree or equivalent required for control and development of works processes. Full details of career and salary expected to the Personnel Manager, Northern Aluminium Co., Ltd., Banbury.

**METALLURGIST** required by Technical Division of light engineering company. Responsibilities include technical control of variety of metallurgical processes, general supervision of modern laboratory and metallography and testing section. Applicants should have degree in metallurgy or chemistry (or equivalents) with some metallurgical experience. Knowledge of statistical quality control procedures an advantage. Salary according to qualifications and experience. Applications to The Personnel Director, Glacier Metal Co., Ltd., Alperton, Middx.

**SENIOR TECHNICAL ASSISTANT** required for the Technical Information Section, The Mond Nickel Co., Ltd., London, for abstracting, indexing, and correlating technical and scientific information, particularly in the metallurgical and engineering fields. Applicants should have technical or scientific qualifications, preferably with some research or industrial experience, have been engaged in bibliographical and information work, and be able to read French and German. Salary commensurate with age, qualifications, and experience. Apply to Manager, D. & R. Department, The Mond Nickel Co., Ltd., Sunderland House, Curzon Street, London, W.1, marking the envelope "T.I.S. Confidential".

# THE SOLIDIFICATION OF CASTINGS

... by R. W. Ruddle

This survey of the literature on the solidification of castings and methods of controlling solidification covers both ferrous and non-ferrous metals and alloys. It is divided into two main sections. The first deals, in a general way, with the work that has been done towards the empirical application of scientific principles to the production of castings and ingots; in this section the concept of "directional solidification" is discussed and the various means available to attain this end are considered. The second part of the book is concerned with the more fundamental study of the solidification rates of castings and ingots. In an Appendix, a critical survey is given of the available data on the thermal properties of metals and mould materials.

A Book for the Practical Foundryman and for the Research Worker

Cloth. 8vo. 116 pages. 46 figures. 10s. 6d. or \$2.00 (5s. 3d. or \$1.00 to members), post free.

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## NON-FERROUS METAL MELTING AND CASTING OF INGOTS FOR WORKING

This symposium on metallurgical aspects of the subject consists of the following six papers by recognized authorities and a full report of an important discussion held at a meeting attended by nearly 400 metallurgists. The papers are "Melting and Casting of Non-Ferrous Metals", by G. L. Bailey and W. A. Baker; "The Production of Refined-Copper Shapes", by R. H. Waddington; "Melting and Casting Aluminium Bronze Ingots for Subsequent Working", by A. J. Murphy and G. T. Callis; "The Application of Flux Degassing to Commercially Cast Phosphor-Bronze", by N. I. Bond-Williams; "The Melting and Casting of Brass", by Maurice Cook and N. F. Fletcher; "The Melting and Casting of Nickel Silver at the Works of Henry Wiggin and Co., Ltd.", by E. J. Bradbury and P. G. Turner.

A book for the practical metallurgist

Cloth. 8vo. 168 pages. 50 figures. 15s. or \$2.50 (7s. 6d. or \$1.50 to members), post free.

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# THE INSTITUTE OF METALS

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N. B. VAUGHAN, M.Sc., F.I.M.

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## INSTITUTE NEWS AND ANNOUNCEMENTS

### AWARDS OF MEDALS

The Council has made the following awards of medals for 1951 :

*The Institute of Metals (Platinum) Medal.* To DR. RANDOLPHE WILLIAM DIAMOND, Vice-President and General Manager of The Consolidated Mining and Smelting Company of Canada, Ltd., Trail, B.C., Canada, in recognition of his outstanding services to the non-ferrous metal industries in connection with researches on differential flotation as applied to the complex Sullivan ore, and as manager of the largest combined copper and lead producer in the world.

*The W. H. A. Robertson Medal.* To MR. CHRISTOPHER SMITH, Works Superintendent, James Booth and Company, Ltd., Birmingham, for his paper on "The Extrusion of Aluminium Alloys" (*Journal of the Institute of Metals*, 1950, **76**, pp. 429-451).

*The Walter Rosenhain Medal* (first award). To PROFESSOR GEOFFREY VINCENT RAYNOR, D.Sc., D.Phil., M.A., Professor of Metal Physics at the University of Birmingham, for his outstanding contributions in the field of physical metallurgy, in connection with our knowledge of the constitution and formation of alloys.

The W. H. A. Robertson Medal and the Walter Rosenhain Medal will be presented during the Annual General Meeting, at a luncheon to be held at the Park Lane Hotel, Piccadilly, London, W.1, on Tuesday, 13 March 1951. Dr. Diamond will not be able to be present then, but hopes to come to London to receive the Institute of Metals (Platinum) Metal on the occasion of the 1951 May Lecture at the Royal Institution on Wednesday, 23 May.

### METALLURGICAL ENGINEERING COMMITTEE

MR. CHARLES PATON of the Northern Aluminium Co., Ltd., has been co-opted as a member of the Metallurgical Engineering Committee, in place of Mr. B. N. H. Thornely, who is going to Canada.

### JOINT COMMITTEE ON NATIONAL CERTIFICATES IN METALLURGY

DR. L. B. PFEIL has been appointed by the Council to be a representative of the Institute on the Joint Committee for National Certificates in Metallurgy, in place of Mr. W. F. Brazener who has resigned this appointment owing to pressure of other work.

## NEWS AND ANNOUNCEMENTS

### CITY AND GUILDS OF LONDON INSTITUTE : ADVISORY COMMITTEE ON METALLURGY

DR. F. A. FOX has been appointed by the Council to be the representative of the Institute of Metals on the Advisory Committee on Metallurgy of the City and Guilds of London Institute.

### BRITISH STANDARDS INSTITUTION : SUB-COMMITTEE NFE/-/5 ON THE TERMINOLOGY OF CASTING DEFECTS

MR. E. A. G. LIDDIARD has been appointed by the Council to be the representative of the Institute on this sub-committee, in place of Mr. R. B. Deeley, deceased.

### RATES OF SUBSCRIPTION TO THE INSTITUTE

The rates of subscription to the Institute of Metals are given below, with, in parentheses, the reduced rates of subscription applicable to members of the Iron and Steel Institute or the Institution of Metallurgists. There is no entrance fee. Particulars of membership may be obtained from the Secretary, 4 Grosvenor Gardens, London, S.W.1.

Ordinary Members : £4 4s. (£3 13s. 6d.) p.a.

Junior Members : £2 15s. (£2 10s.) p.a.

Student Members : £1 15s. (£1 11s.) p.a.

### PERSONAL NOTES

MR. GEOFFREY W. BROWN has resigned his post of metallurgist with S. Smith and Sons (England), Ltd., and taken up an appointment as Chief Metallurgist to Douglas (Kingswood), Ltd., Kingswood, Bristol.

MR. J. A. CHARLES has left J. Stone and Co., Ltd., and is now Assistant Metallurgist with The British Oxygen Co., Ltd., Morden.

MR. J. CROWTHER, Research Metallurgist of James Booth and Co., Ltd., Birmingham, has been appointed Chief Metallurgist to the Company.

DR. S. L. HOYT, Technical Advisor to the Battelle Memorial Institute, has been awarded the Outstanding Achievement Medal of the University of Minnesota.

MR. C. LANG is now at the North-East Coast Laboratory of the British Iron and Steel Research Association, Normanby, Middlesbrough.

MR. R. C. LLOYD has left James Booth and Co., Ltd., and taken up a position as metallographer with Light Metal Forgings, Ltd., Church Bridge, Oldbury, near Birmingham.

MR. S. W. K. MORGAN, Research Manager of the National Smelting Co., Ltd., has been elected a director of the Company.

IR. J. H. PALM has resigned his position as Head of the Materials Department of the Nationaal Luchtvaartlaboratorium, Amsterdam, in order to become Head of the Laboratory of Valevefa N.V., Amsterdam.

MR. DONALD RAE has been appointed General Manager of McKechnie Brothers, Ltd., Birmingham.

## NEWS AND ANNOUNCEMENTS

MR. CHRISTOPHER SMITH, who was Chief Metallurgist of James Booth and Co., Ltd., Birmingham, has been appointed Works Superintendent of the Company.

MR. R. A. SMITH, who was recently awarded the Ph.D. degree of Birmingham University, has now left the University to take up a position in the Development and Research Department of The Mond Nickel Co., Ltd.

MR. J. E. SRAWLEY has left the Development and Research Department of The Mond Nickel Co., Ltd., to take up an appointment on the research staff of the British Cast Iron Research Association.

MR. B. N. H. THORNELY, Chief Engineer of the Northern Aluminium Co., Ltd., is shortly transferring to the office of the Director of Operations, Aluminium, Ltd., Montreal, Canada.

### DEATHS

The Editor regrets to announce the death of :

DR. HENRY WINDER BROWNSDON, at his home in Birmingham on 19 November 1950. Until his retirement rather more than 10 years ago, Dr. Brownsdon was Research Manager of Imperial Chemical Industries, Ltd. (Metals Division). He was an Original Member of the Institute and served as a Member of Council 1921-25 and 1931-36 and as a Vice-President 1936-39.

MR. AUSTIN CROWTHER, Director and Chief Metallurgist of Peglers, Ltd., Doncaster, on 15 January 1951, aged 64. He had been a member of the Institute since 1914.

M. PIERRE-JOSEPH-MARIE LEEMANS, Vice-Président et Administrateur-Délégué de la Société Générale Métallurgique de Hoboken, on 10 January 1951, at Antwerp.

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*Note : Will members (in addition to informing the Institute's administrative department of changes of address, occupation, &c.) kindly notify the Editor, separately, of all changes of occupation, appointments, award of honours and degrees, &c., as these matters interest their fellow-members.*

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## OTHER NEWS

### THE INSTITUTION OF METALLURGISTS : EXAMINATIONS

The next examinations for the Licentiateship and Associateship of the Institution of Metallurgists will be held from 27 August to 3 September 1951. Candidates must submit their applications for permission to enter the examinations before 1 May 1951 (overseas 1 March 1951).

Each application must be made on a form to be obtained from the Registrar-Secretary of the Institution, 4 Grosvenor Gardens, London, S.W.1, and must be accompanied by a registration fee of one guinea.

Examinations for the Fellowship will also be held between 27 August and 3 September, 1951, and intending candidates should

## NEWS AND ANNOUNCEMENTS

apply for permission to enter for the examination, submitting, for the approval of the Council, a statement of the branch of metallurgy in which they offer themselves for examination.

### THE INSTITUTION OF METALLURGISTS : NEW ELECTIONS

The following elections have recently been announced :

#### *As Fellow*

G. B. Salkeld (High Duty Alloys, Ltd.).

#### *As Fellows from the Grade of Associate*

T. E. Alker (Guest, Keen and Nettlefolds (South Wales), Ltd.), P. F. Hancock (Birlec, Ltd.), W. M. E. Hesselberger (Elkington and Co., Ltd.), J. B. Vickers (Firth-Brown Tools, Ltd.), R. F. Weil (English Electric Co., Ltd.).

#### *As Associates*

S. Binner (Stewarts and Lloyds, Ltd.), N. J. B. Dunne (Rhodesia Copper Refineries, Ltd.), F. A. Hamilton (Commonwealth Steel Co., Ltd.), M. D. Jackson (British Welding Research Association), F. A. Meachem (Joseph Sankey and Sons, Ltd.), G. M. Michie (British Steel Founders' Association), S. Mocarski (David Brown Foundries Co., Ltd.), H. Muir (University of Otago), A. W. Taylor (British Electricity Authority (S. Wales Division)), I. O. V. Thomas (North Gloucestershire Technical College).

#### *As Associates from the Grade of Licentiate*

F. K. Oldfield (Chesterfield Tube Co., Ltd.), R. R. Roberts (British Thomson-Houston Co., Ltd.).

#### *As Licentiates*

H. Bellamy (Stokes and Sons Pty., Ltd.), K. G. Blackmore (D. Napier and Son, Ltd.), R. G. Bunce (Pirelli General Cable Works, Ltd.), T. Cleland (Colvilles, Ltd.), S. Foldes (Yorkshire Copper Works, Ltd.), C. Ford (British Cast Iron Research Association), K. K. Ghosh (B.N. Railway, India), J. Sokell (Appleby-Frodingham Steel Co., Ltd.), D. R. Steiner (National Physical Laboratory).

## INSTITUTION OF CHEMICAL ENGINEERS 1951 CONVENTION

The Institution of Chemical Engineers is holding a Convention on "Chemical Engineering—Opportunities in Specific Industries" from 11 to 15 April 1951 at Nutford House, Brown Street, London, W.1. In the course of the Convention, Dr. A. H. Leckie will speak on "The Iron and Steel Industry" at 9.30 a.m. on 12 April, and Mr. Stanley Robson will speak on "The Non-Ferrous Metals Industry" at 11.15 a.m. on the same day.

All enquiries should be addressed to the Convention Secretary at the Institution of Chemical Engineers, 56 Victoria Street, London, S.W.1.

### FESTIVAL OF BRITAIN 1951 : VISITS TO FACTORIES

British manufacturers who are willing to receive visitors at their factories during the Festival of Britain, 1951, are invited to send particulars to the Council of Industrial Design. The Council will compile a list of such firms and arrange for it to be carried at all Industrial Information Bureaux in the official Festival Exhibitions.

## NEWS AND ANNOUNCEMENTS

The list will be issued to visitors on presenting a trade or business card.

The Festival authorities have always intended the 1951 Festival to be a nation-wide affair, and have planned the South Bank Exhibition to contain many pointers to places and events of interest in other parts of the United Kingdom. For two years the Council of Industrial Design, as a constituent body of the Festival Organization, has appealed through the trade associations and in many meetings and conversations with industrialists, for the opening of British factories to visitors. Interest in the project is now growing, at home and overseas, and the Council seeks to record in advance of the opening date details of those firms which are prepared (and not debarred for security reasons) to make this important contribution to the Festival. The Council cannot, of course, guarantee that every firm on the list will be visited.

Manufacturers who would like their names to appear on the list should write to Mr. S. D. Cooke, Council of Industrial Design, Tilbury House, Petty France, London, S.W.1 (telephone VICtoria 8484), enclosing in addition to the name and address of their factory some particulars of the goods they make, the approximate number of employees in the factory or other indication of size, the most convenient days and hours for receiving visitors, and the person to whom visitors should apply in advance. Details of languages spoken by staff available as conductors will be welcome.

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## DIARY FOR APRIL

### LOCAL SECTIONS MEETINGS

#### THURSDAY, 5 APRIL

**Birmingham Local Section.**—Annual General Meeting and Chairman's Address. (James Watt Memorial Institute, Great Charles Street, Birmingham 3, at 6.30 p.m.)

**London Local Section.**—Annual General Meeting, followed by discussion on "Sintering" to be opened by J. C. Chaston and J. P. Roberts. (The Institute, 4 Grosvenor Gardens, London, S.W.1, at 7 p.m.)

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### OTHER MEETINGS

#### WEDNESDAY, 4 APRIL

**Institute of Welding.**—E. G. West: "Some Metallurgical Considerations in the Welding of Aluminium Alloys". (Institution of Civil Engineers, Great George Street, London, S.W.1, at 6 p.m.)

#### THURSDAY, 5 APRIL

**Leeds Metallurgical Society.**—H. Dearns: "Training for Industrial Metallurgists". (Chemistry Dept., The University, Leeds 2, at 7 p.m.)

**Liverpool Metallurgical Society.**—Annual General Meeting, followed by presentation of Prize-winning Students' papers. (Lecture Theatre, Electricity Service Centre, Whitechapel, Liverpool, at 7 p.m.)

## NEWS AND ANNOUNCEMENTS

TUESDAY, 10 APRIL

**Institution of Production Engineers, Birmingham Graduate Section.**—J. D. Jevons: "Defects and Developments in Deep Drawing and Pressing". (James Watt Memorial Institute, Great Charles Street, Birmingham 3, at 7 p.m.)

THURSDAY, 19 APRIL

**Institution of Mining and Metallurgy.**—General Meeting. (Geological Society, Burlington House, Piccadilly, London, W.I., at 5 p.m.)

**Institution of Production Engineers, London Section.**—J. D. Jevons: "How the Production Engineer can be Helped by the Metallurgist". (Royal Empire Society, Northumberland Avenue, London, W.C.2, at 7 p.m.)

WEDNESDAY, 25 APRIL

**Institute of British Foundrymen, London Branch.**—Annual General Meeting, followed by films on "Castings" and "Forgings", by High Duty Alloys, Ltd. (Waldorf Hotel, Aldwych, London, W.C.2, at 7 p.m.)

FRIDAY, 27 APRIL

**Electrodepositors' Technical Society, Sheffield and North-East Centre.**—T. Parry: "Finishing Operations as Applied in the Cycle Industry". (Grand Hotel, Sheffield, at 6.30 p.m.)

## APPOINTMENTS VACANT

APPLICATIONS are invited by the Division of Atomic Energy (Production), Risley, near Warrington, Lancs., for the following appointments:

Post 1.—**METALLURGIST** to take charge of a laboratory engaged on investigations essential to the development of metallurgical processes used in atomic energy production. Experience in the development of metallurgical processes, including vacuum and powder metallurgical techniques, is essential.

Post 2.—**PHYSICAL CHEMIST** to take charge of a laboratory engaged on corrosion investigations and the application of electrochemical methods. Experience in electrochemistry and corrosion is essential.

Post 3.—**MECHANICAL ENGINEER** to take charge of a mechanical test laboratory, drawing office, and machine shop. Experience in modern mechanical test methods, strengths of materials, and design of appropriate equipment is essential. Candidates should preferably have served a recognized engineering apprenticeship.

Candidates must have an honours degree in metallurgy (Post 1), physical chemistry, chemistry or metallurgy (Post 2), and engineering (Post 3). Alternatively they must have associateship of either the Institution of Metallurgists or the Royal Institute of Chemistry, corporate membership of one of the Institutions of Mechanical or Electrical Engineers or equivalent qualifications.

Salaries will be assessed according to qualifications and experience within the ranges, Post 1 £997-£1192 p.a.; Posts 2 and 3 £997-£1192, or £720-£960 p.a. A superannuation scheme will be introduced shortly. Applications to Ministry of Supply, D.A.T.E.N. (P), Risley, near Warrington, Lancs., stating post applied for.

**CAPPER PASS AND SON, LTD.**, (Bristol and Hull), require University-trained chemists and chemical engineers for their research and development department (under 35). The Company smelt and refine low-grade and complex materials containing the heavy metals. The posts are permanent and pensionable. 1st or 2nd class honours degree essential. Commencing salary £600-£900, according to experience. Apply to The Secretary, Capper Pass and Son, Ltd., Bristol, England.

**CHEMISTS.** A rapidly expanding organization in the Midlands invites applications from qualified chemists to undertake work into a variety of subjects including lubrication oils and greases; cutting fluids; corrosion problems; the preparation and treatment of metallic surfaces by metal spraying, painting, and enamelling; electroplating; adhesives. The nature of the posts demands that only applicants who are capable of taking responsibility and can show a high degree of initiative need apply. Send full details including present salary to Box No. 304, Institute of Metals, 4 Grosvenor Gardens, London, S.W.1.

**ENGINEER OR METALLURGIST** aged between 20 and 30 with some experience in powder metallurgy required by large organization concerned with manufacture of diamond tools in Johannesburg. Salary £700-£1000 according to qualifications. Further details and preliminary interview can be had in London. Box No. 303, Institute of Metals, 4 Grosvenor Gardens, London, S.W.1.

March 1951

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## INSTITUTE NEWS AND ANNOUNCEMENTS

### COMMITTEES: CHAIRMEN FOR 1951-52

The Council has appointed the following to be Chairmen of Committees for 1951-52:

*Finance and General Purposes Committee:* Major C. J. P. Ball.

*Local Sections Committee:* Mr. H. W. G. Hignett.

*Medal Committee:* The President.

*Metal Physics Committee:* Professor A. G. Quarrell.

*Metallurgical Engineering Committee:* Mr. Christopher Smith.

*Nominations Committee:* The President.

*Publication Committee:* Professor H. O'Neill.

### ANNUAL AUTUMN MEETING, ITALY, 16 TO 25 SEPTEMBER 1951

As previously announced, the Council has gratefully accepted an invitation from the Associazione Italiana di Metallurgia to hold the 1951 Autumn Meeting in Italy. The meeting will take place in Venice, with optional extensions to Milan and Florence.

The Council of the Iron and Steel Institute has accepted an invitation to hold a special meeting in Austria from 5 to 19 September, and it has been agreed between the two Councils that members of the Iron and Steel Institute shall be accepted at the meeting in Italy on the same terms as members of the Institute of Metals, and that members of the Institute of Metals shall, likewise, be entitled—on similar terms—to attend the Iron and Steel Institute meeting in Austria.

Messrs. Thos. Cook and Son, Ltd., will act as agents for both Institutes in the arrangement of travel and hotel accommodation, and it is hoped that printed documents giving full details of cost will be available by the end of April. All members who would like to receive these documents should notify the Secretary without delay. Arrangements are being made for a special sleeping-car train to Venice.

It is hoped that the meeting in Italy will be attended by a large number of members and ladies. All those who expect to take part in the meeting (including those resident in European and other countries who would make independent travel arrangements) are requested to advise the Secretary (without obligation) as soon as possible.

## NEWS AND ANNOUNCEMENTS

The general outline of the programme of the meeting in Italy is given below ; fuller details will be published as soon as they are complete.

<i>Fri., 14 Sept.</i>		Main party leaves London by train.
<i>Sat., 15 Sept.</i> ,	<i>aft.</i>	Main party arrives in Venice.
<i>Sun., 16 Sept.</i> ,	<i>morn.</i>	Official opening of the meetings of the Institute of Metals and the Associazione Italiana di Metallurgia, by the Mayor of Venice, in the Doge's Palace.
	<i>aft.</i>	Free.
	<i>evg.</i>	Free.
<i>Mon., 17 Sept.</i> ,	<i>morn.</i>	Scientific and technical session.
	<i>aft.</i>	Works, etc., visits or scientific and technical session.
	<i>evg.</i>	Free.
<i>Tues., 18 Sept.</i> ,	<i>morn.</i>	Scientific and technical session.
	<i>aft.</i>	Works, etc., visits or scientific and technical session.
		Members of the Iron and Steel Institute leave, if they desire, for Milan by road, taking tea at Gardone or Sirmione.
	<i>evg.</i>	Free.
<i>Wed., 19 Sept.</i> ,	<i>morn.</i>	Venice: Visits (cultural, etc.).
	<i>aft.</i>	Milan: Works visits.
		Venice: Party leaves by road for Milan, taking tea at Gardone or Sirmione.
		Milan: Works visits (for those already in the city).
	<i>evg.</i>	Free.
<i>Thurs., 20 Sept.</i> ,	<i>morn.</i>	Joint session, in Milan, with the Associazione Italiana di Metallurgia on "Metals in the Field of Art".
	<i>aft.</i>	Visits to the 9th Exhibition of Decorative Art and to other places of interest in Milan.
	<i>evg.</i>	Dinner (lounge suits) jointly with members of the Associazione Italiana di Metallurgia.
<i>Fri., 21 Sept.</i> ,	<i>morn.</i>	Visit to the Istituto Sperimentale Leggieri, at Novara.
		Lunch at Stresa, where ladies will join the party.
	<i>aft.</i>	Visit to Lake Maggiore by steamer.
	<i>evg.</i>	Free in Milan.
<i>Sat., 22 Sept.</i> ,	<i>morn.</i>	Free in Milan.
	<i>aft.</i>	Leave Milan for Florence.
	<i>evg.</i>	Free in Florence.
<i>Sun., 23 Sept.</i> ,	<i>all-day</i>	Free in Florence.
<i>Mon., 24 Sept.</i> ,	<i>all-day</i>	Works visits in the Florence area.
<i>Tues., 25 Sept.</i> ,	<i>morn.</i>	Free in Florence.
	<i>4.30 p.m.</i>	Train for London.
<i>Wed., 26 Sept.</i>		Arrive London.

*Note.*—The official parties for which Thos. Cook and Son, Ltd., will make train arrangements on behalf of the Institute, may return to London, etc., from Venice, on Wed., 19 Sept. ; from Milan on Sat., 22 Sept. ; or from Florence, on Tues., 25 Sept. Extensions in Italy can be arranged to suit members' special requirements.

## NEWS AND ANNOUNCEMENTS

### APPEAL TO INDUSTRY FOR REGULAR FINANCIAL SUPPORT OF THE INSTITUTE'S WORK

Up to the time of going to press with this issue of the *Journal* (9 Feb.), the following subscriptions and donations have been notified in response to the Council's appeal to industry for regular financial support. Other subscriptions are known to be pending, and details will be published in later issues. Many companies have stated that they have been glad to have this opportunity to show their appreciation of the services that the Institute is providing for science and industry.

The Council sincerely appreciates the generous response already made to its appeal and hopes that all companies connected with the non-ferrous metal industries—both great and small—will be prepared to give the Institute their support according to their ability.

In view of the fact that the Council has asked to be assured of a very substantial *regular* increase in revenue for the next seven years, it is hoped that those who undertake to subscribe will be prepared to do so under covenant. Copies of the letter of appeal and the printed form of covenant may be obtained on application to the Secretary.

#### A. Annual Subscriptions, Under Covenant, for Not Less than 7 Years

<i>Subscriber</i>	<i>Net Subscription</i>	<i>Gross, Annually, after Recovery of Tax by the Institute</i>
	<i>£ s. d.</i>	<i>£ s. d.</i>
Enfield Rolling Mills, Ltd. (incl. Enfield Copper Refining Co., Ltd.; Enfield Rolling Mills (Aluminium), Ltd.; Holloway Metal Roofs, Ltd.; and London Zinc Mills, Ltd.) . . . . .	275 0 0	500 0 0
Consolidated Zinc Corporation, Ltd., The (incl. The Broken Hill Corporation, Ltd.; Imperial Smelting Corporation, Ltd.; The National Smelting Co., Ltd.; New Broken Hill Consolidated, Ltd.; Northern Smelting and Chemical Co., Ltd.; Sulphide Corporation Pty., Ltd.; and The Zinc Corporation, Ltd.) . . . . .	250 0 0	454 10 0
Goodlass Wall and Lead Industries, Ltd.: Associated Lead Industries, Ltd. £100 Fry's Metal Foundries, Ltd. (incl. Antifriction Bearing Co., Ltd.; Atlas Metal and Alloys, Ltd.; and The Eyre Smelting Co., Ltd.) 50	—	150 0 0      272 14 0 150 0 0      272 14 0 150 0 0      272 14 0
Mufulira Copper Mines, Ltd. . . . . Roan Antelope Copper Mines, Ltd. . . . . Imperial Chemical Industries, Ltd. and its subsidiary companies . . . . .	137 10 0	250 0 0

## NEWS AND ANNOUNCEMENTS

<i>Subscriber</i>	<i>Net Subscription</i>	<i>Gross, Annually, after Recovery of Tax by the Institute</i>
	<i>£ s. d.</i>	<i>£ s. d.</i>
British Aluminium Co., Ltd., The (incl. Aluminium Corporation, Ltd.; William Mills, Ltd.; and North British Aluminium Co., Ltd.) . . . . .	100 0 0	181 18 0
McKechnie Brothers, Ltd. . . . .	100 0 0	181 18 0
Magnesium Elektron, Ltd. (incl. F. A. Hughes & Co., Ltd.) . . . . .	100 0 0	181 18 0
Consolidated Tin Smelters, Ltd. (incl. The Cornish Tin Smelting Co., Ltd.; Eastern Smelting Co., Ltd.; The Penpont Tin Smelting Co., Ltd.; and Williams, Harvey and Co., Ltd.) . . . . .	50 0 0	90 19 0
Enthoven (H. J.) and Sons, Ltd. . . . .	50 0 0	90 19 0
High Duty Alloys, Ltd. . . . .	50 0 0	90 19 0
Venesta, Ltd. . . . .	50 0 0	90 19 0
Whiley (Geo. M.), Ltd. . . . .	50 0 0	90 19 0
Associated Electrical Industries, Ltd., on behalf of the A.E.I. Group of companies . . . . .	27 10 0	50 0 0
Dale (John), Ltd. . . . .	27 10 0	50 0 0
Murex, Ltd. (incl. Murex Welding Processes, Ltd.) . . . . .	27 10 0	50 0 0
Morgan Crucible Co., Ltd., The . . . . .	26 5 0	47 14 0
A.P.V. Company, Ltd., The . . . . .	25 0 0	40 5 0
Birmetals, Ltd. . . . .	25 0 0	40 5 0
Birmingham Aluminium Casting (1903) Co., Ltd. . . . .	25 0 0	40 5 0
Bristol Aeroplane Co., Ltd., The . . . . .	25 0 0	40 5 0
British Metal Corporation, Ltd., The . . . . .	25 0 0	40 5 0
Chloride Electrical Storage Co., Ltd., The . . . . .	25 0 0	40 5 0
London and Scandinavian Metallurgical Co., Ltd. . . . .	25 0 0	40 5 0
Star Aluminium Co., Ltd. (incl. Anglo-Swiss Aluminium Co., Ltd.) . . . . .	25 0 0	40 5 0
Sterling Metals, Ltd. . . . .	25 0 0	40 5 0
Wolverhampton Metal Co., Ltd., The . . . . .	25 0 0	40 5 0
Light Metal Forgings, Ltd. . . . .	21 0 0	38 3 8
Ferranti, Ltd. . . . .	20 0 0	36 8 0
Gibbons Brothers, Ltd. (incl. The Thermic Equipment and Engineering Co., Ltd.) . . . . .	20 0 0	36 8 0
British Tin Investment Corporation, Ltd. . . . .	15 15 0	28 8 0
Derby and Co., Ltd. . . . .	15 15 0	28 8 0
London Electric Wire Company and Smiths, Ltd., The . . . . .	15 15 0	28 8 0
Bolton (Thomas) and Sons, Ltd. . . . .	15 0 0	27 5 5
British Lead Mills, Ltd. . . . .	15 0 0	27 5 5
British Tin Smelting Co., Ltd., The . . . . .	10 10 0	18 8 6
General Electric Co., Ltd., The . . . . .	10 10 0	18 8 6
Saunders-Roe, Ltd. . . . .	10 10 0	18 8 6
Rollet (H.) and Co., Ltd. . . . .	10 0 0	18 4 0
Wolverhampton Die-Casting Co., Ltd., The . . . . .	10 0 0	18 4 0
Scottish Non-Ferrous Tube Industries, Ltd. . . . .	8 5 0	15 0 0
Central Marine Engine Works (William Gray & Co., Ltd.) . . . . .	5 5 0	9 14 0
Harland Engineering Co., Ltd., The . . . . .	5 5 0	9 14 0

## NEWS AND ANNOUNCEMENTS

<i>Subscriber</i>	<i>Net Subscription</i>	<i>Gross, Annually, after Recovery of Tax by the Institute</i>
	£ s. d.	£ s. d.
Wild-Barfield Electric Furnaces, Ltd.	5 5 0	9 14 0
Hunt and Mitton, Ltd.	5 0 0	9 1 10
Jenkinson (W. G.), Ltd.	5 0 0	9 1 10
Shaw, Son and Greenhalgh, Ltd.	5 0 0	9 1 10
Stein (John G.) and Co., Ltd.	5 0 0	9 1 10
Betts and Co., Ltd.	4 4 0	7 12 6
Glenfield and Kennedy, Ltd.	4 4 0	7 12 6
Platt Metals, Ltd.	2 0 0	3 12 9

### B. Annual Subscriptions to be Renewed (without obligation), But Not Under Covenant

United States Copper and Brass Industry: individual subscriptions, totalling \$2400, by the following:	£ s. d.
American Brass Co., The . . . . .	}
Bridgeport Brass Co. . . . .	}
Bristol Brass Corporation, The . . . . .	}
Chase Brass and Copper Co., Inc. . . . .	}
Lewin-Mathes Co. . . . .	854 0 0
Revere Copper and Brass, Inc. . . . .	}
Scovill Manufacturing Co. . . . .	}
Wolverine Tube Division, Calumet and Hecla . . . . .	}
Consolidated Copper Co., Inc. . . . .	178 0 6
Aluminum Company of America (\$500) . . . . .	100 0 0 *
Capper, Pass and Son, Ltd. (incl. Victor G. Stevens, Ltd.) . . . . .	52 10 0
Manganese Bronze and Brass Co., Ltd., The . . . . .	50 0 0 *
G.K.N. Group Services, Ltd. . . . .	50 0 0 *
Lucas (Joseph), Ltd. (incl. Rotax, Ltd.) . . . . .	42 0 0 *
Wednesbury Tube Co., Ltd., The . . . . .	26 5 0 *
English Electric Co., Ltd., The . . . . .	25 0 0 (5)
Braby (Fredk.) and Co., Ltd. . . . .	25 0 0 *
British United Shoe Machinery Co., Ltd., The . . . . .	25 0 0 *
Gardner (Henry) and Co., Ltd. . . . .	25 0 0 *
Telegraph Construction and Maintenance Co., Ltd., The . . . . .	22 0 0 *
Metal Box Co., Ltd., The . . . . .	21 0 0
Almin, Ltd. . . . .	21 0 0
Fulmer Research Institute, Ltd. . . . .	21 0 0
International Alloys, Ltd. . . . .	21 0 0
Philips Electrical, Ltd. . . . .	21 0 0 *
Renfrew Foundries, Ltd. . . . .	20 0 0 *
Glynn Brothers, Ltd. . . . .	10 10 0 *
Hoover, Ltd. . . . .	10 10 0
Incandescent Heat Co., Ltd., The . . . . .	10 10 0
Crittall Manufacturing Co., Ltd. . . . .	10 0 0
Electric Furnace Co., Ltd. . . . .	10 0 0 (3)
Electric Resistance Furnace Co., Ltd. . . . .	10 0 0 (3)
Rothschild (N. M.) and Sons . . . . .	10 0 0 *
Pascall Engineering Co., Ltd., The . . . . .	6 6 0 *
United Wire Works (Birmingham), Ltd. . . . .	6 6 0 *
Ratcliffe (Great Bridge), Ltd. . . . .	5 5 0 *
Jenks (E. P.), Ltd. . . . .	1 1 0 *

\* = received as an "annual subscription". Where a fixed number of subscriptions is promised, the total number is shown in brackets.

## NEWS AND ANNOUNCEMENTS

### C. Donations (Some of which May Be Renewed for Unspecified Amounts)

	<i>£ s. d.</i>
Babcock and Wilcox, Ltd. (incl. The Calorizing Corporation of Great Britain, Ltd.) . . . . .	250 0 0
Vickers-Armstrongs, Ltd. . . . .	105 0 0
Davy and United Engineering Co., Ltd. . . . .	100 0 0
Rylands Brothers, Ltd., and The Whitecross Co., Ltd. . . . .	100 0 0
Stone (J.) and Co. (Charlton), Ltd. . . . .	100 0 0
Mallory Metallurgical Products, Ltd. . . . .	52 10 0
Austin Motor Co., Ltd., The . . . . .	50 0 0
Rolls-Royce, Ltd. . . . .	50 0 0
Weir (G. and J.), Ltd. . . . .	50 0 0
Copper and Alloys, Ltd. . . . .	25 0 0
Thompson (John) (Wolverhampton), Ltd. . . . .	25 0 0
Bull's Metal and Melloid Co., Ltd. . . . .	21 0 0
Harrison (Birmingham), Ltd. . . . .	21 0 0
Monotype Corporation, Ltd., The . . . . .	21 0 0
Brightside Foundry and Engineering Co., Ltd., The . . . . .	20 0 0
Hard Metal Tools, Ltd. . . . .	20 0 0
Hills (West Bromwich), Ltd. . . . .	10 10 0
Vauxhall Motors, Ltd. . . . .	10 10 0
Dennison Watch Case Co., Ltd. . . . .	5 5 0
Easdale (R. M.) and Co. . . . .	5 5 0
Headley, Birch and Co., Ltd. . . . .	5 5 0
Lead Wool Co., Ltd., The . . . . .	5 5 0
New Metals and Chemicals, Ltd. . . . .	5 5 0
Wilkinson (John) and Sons (Saltley), Ltd. . . . .	5 5 0
Hoyt Metal Company of Great Britain, Ltd., The . . . . .	5 0 0
Blakeborough (J.) and Sons, Ltd. . . . .	4 4 0
Kincaid (John G.) and Co., Ltd. . . . .	4 4 0
Carobronze, Ltd. . . . .	2 2 0

### ELECTION OF ORDINARY MEMBERS AND STUDENT MEMBERS

The following 15 Ordinary Members and 17 Student Members were elected on 8 February 1951:

#### *As Ordinary Members*

BERGER, Michael M., Chairman and Managing Director, Wilkes Berger Engineering Company, Ltd., 143-9 Curtain Road, London, E.C.2.

CHALMERS, James Lauder, M.B.E., M.C., Managing Director, E. Chalmers and Company, Ltd., 32-36 Newhaven Road, Leith, Edinburgh 6.

FELIX, Werner A., Dipl. Ing., Chief of the Materials Testing Laboratory, Gebr. Sulzer A. G., Winterthur, Switzerland.

FINNISTON, Harold Montague, B.Sc., Ph.D., A.R.T.C., Chief Metallurgist, Atomic Energy Research Establishment, Harwell, Didcot, Berkshire.

FRATER, Edward Charles, Secretary, Loewy Engineering Company, Ltd., Branksome Grange, St. Aldhelm's Road, Westbourne, Bournemouth, Hampshire.

## NEWS AND ANNOUNCEMENTS

- HAYWOOD, R. A., Research Metallurgist, Universal Grinding Wheel Company, Ltd., Doxey Road, Stafford.
- JEWELL, Ronald Colgan, B.Sc., A.R.S.M., Director and Chief Metallurgist, Sheffield Smelting Company, Ltd., Royds Mill Street, Sheffield.
- PATON, Charles Peter, B.Eng., General Works Manager, Northern Aluminium Company, Ltd., Wellington House, Strand, London, W.C.2.
- RICHARDS, Lynn Griffith, B.S., Research Technician, Metallurgy Laboratory, Johns Hopkins University, Baltimore, Md., U.S.A.
- ROMER-LEE, Knyvett, M.A., Senior Executive Assistant, British Non-Ferrous Metals Federation, 132 Hagley Road, Birmingham 16.
- SHEIELDS, Harry Gordon, Director, E. Chalmers and Company Ltd., 32-36 Newhaven Road, Leith, Edinburgh 6.
- SUTTON, Charles Thomas William, M.Sc., Associate Director and Chief Cable Engineer, Enfield Cables, Ltd., Brimsdown, Middlesex.
- TABARY, (Mlle.) Audrei, Ingénieur Sous-chef du Service Recherches et Laboratories, Compagnie de Fives-Lille, Lille (Nord), France.
- WOOD, Dennis, Assistant Works Manager, Charles Clifford and Son, Ltd., Dog Pool Mills, Birmingham 30.
- YOUNG, R. F. S., General Manager, Non-Ferrous Tube Company (Pty), Ltd., Box 484, Springs, Transvaal, South Africa.

### *As Student Members*

- ALMOND, John Kenneth, Student of Metallurgy, Royal School of Mines, London, S.W.7.
- ATKINSON, Charles Edward, Trainee, W. G. Jenkinson, Ltd., 156-160 Arundel Street, Sheffield 1.
- BARLEGGS, Roy Ernest, Student of Metallurgy, Royal School of Mines, London, S.W.7.
- BARRY, Beresford T. K., Student of Metallurgy, Royal School of Mines, London, S.W.7.
- BRIDGES, Dennis Francis, Student Metallurgist, Southern Forge, Ltd., Meadfield Road, Langley, Bucks.
- CATTERALL, Graham John, Student of Metallurgy, Royal School of Mines, London, S.W.7.
- CHANDLER, Kenneth A., Student of Metallurgy, Royal School of Mines, London, S.W.7.
- CLOW, Colin George, Student of Metallurgy, Royal School of Mines, London, S.W.7.
- EASTEAL, Charles Dennis, Student of Metallurgy, Royal School of Mines, London, S.W.7.
- FLATLEY, Peter, Student of Metallurgy, Royal School of Mines, London, S.W.7.
- FULWELL, Michael David, Student of Metallurgy, Royal School of Mines, London, S.W.7.
- GREEN, Edward Charles, Student of Metallurgy, Royal School of Mines, London, S.W.7.
- KESSLER, Sebastian W., B.S., Student of Metallurgy, Johns Hopkins University, Baltimore, Md., U.S.A.

## NEWS AND ANNOUNCEMENTS

- KNOWLES, David Ross, B.Sc., Physicist, Magnesium Elektron, Ltd., Clifton Junction, near Manchester.
- MCKECHNIE, Alec R., Student of Metallurgy, Royal School of Mines, London, S.W.7.
- PATRICK, Alan Walters, Student of Metallurgy, Royal School of Mines, London, S.W.7.
- PEARCE, Richard Gerald Anthony, Student of Metallurgy, Royal School of Mines, London, S.W.7.

### DEATHS

The Editor regrets to announce the deaths of:

MR. FRANK LOUIS BAER, Chairman and Joint Managing Director of Metal Traders, Ltd., at his home in Surrey on 14 January, 1951, aged 66.

PROFESSOR THOMAS TURNER, Emeritus Professor of Metallurgy in the University of Birmingham, on 31 January 1951, in his ninetieth year. Professor Turner was an Original Member and Fellow of the Institute and served as President in 1924-26.

### APPOINTMENTS VACANT

**APPLICATIONS** from graduates are invited for a post in the Tinplate Department of the Tin Research Institute. Commencing salary £400-£500 a year according to qualifications and experience, with prospect of substantial advancement. Superannuation under F.S.S.U. Applications should be addressed to the Director, Tin Research Institute, Fraser Road, Perivale, Greenford, Middx.

**CHEMISTS.** A rapidly expanding organization in the Midlands invites applications from qualified chemists to undertake work on a variety of subjects, including lubrication oils and greases; cutting fluids; corrosion problems; the preparation and treatment of metallic surfaces by metal spraying, painting, and enamelling; electroplating; and adhesives. The nature of the posts demands that only applicants who are capable of taking responsibility and can show a high degree of initiative need apply. Send full details, including present salary, to Box No. 304, Institute of Metals, 4 Grosvenor Gardens, London, S.W.1.

**ENGINEER OR METALLURGIST,** aged between 20 and 30, with some experience in powder metallurgy required by large organization concerned with manufacture of diamond tools in Johannesburg. Salary £700-£1000, according to qualifications. Further details, and a preliminary interview, can be had in London. Reply to Box No. 303, Institute of Metals, 4 Grosvenor Gardens, London, S.W.1.

**FOUNDRY FOREMAN** for small Foundry in west end Glasgow, with experience in cast iron and non-ferrous castings, cupolette and pit fires, pin lift and turnover moulding machines, tub and floor moulding for light jobbing work. Good prospects for man with drive and initiative. Apply stating age, experience, with copies of references, where available, to Box No. 306, Institute of Metals, 4 Grosvenor Gardens, London, S.W.1.

**GROUP-LEADER** (Process Metallurgy) is required by an expanding manufacturing concern in the Bristol area. Duties will include the supervision of teams working on pilot-plant scale experiments into extraction metallurgy and the instigation of research programmes concerned with the extraction of non-ferrous metals. Applications are invited from metallurgists, physical chemists, or chemical engineers over the age of 30. It is essential for candidates to possess an honours degree and have experience in production-type work in metals or heavy chemicals. Commencing salary will be in the range £800 to £1,000 per annum according to qualifications and experience. Brief details in the first place, quoting GLM/IM to Box 305, Institute of Metals, 4 Grosvenor Gardens, London, S.W.1.

Other Appointments Vacant will be found facing p. 56.

April 1951

# THE INSTITUTE OF METALS

President :

Professor A. J. MURPHY, M.Sc., F.I.M.

Secretary :

Lieut.-Colonel S. C. GUILLAN, T.D.

Editor :

N. B. VAUGHAN, M.Sc., F.I.M.

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4 GROSVENOR GARDENS, LONDON, S.W.1

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## INSTITUTE NEWS AND ANNOUNCEMENTS

### ELECTION OF ORDINARY MEMBERS, JUNIOR MEMBER, AND STUDENT MEMBERS

The following 13 Ordinary Members, 1 Junior Member, and 10 Student Members were elected on 22 February 1951:

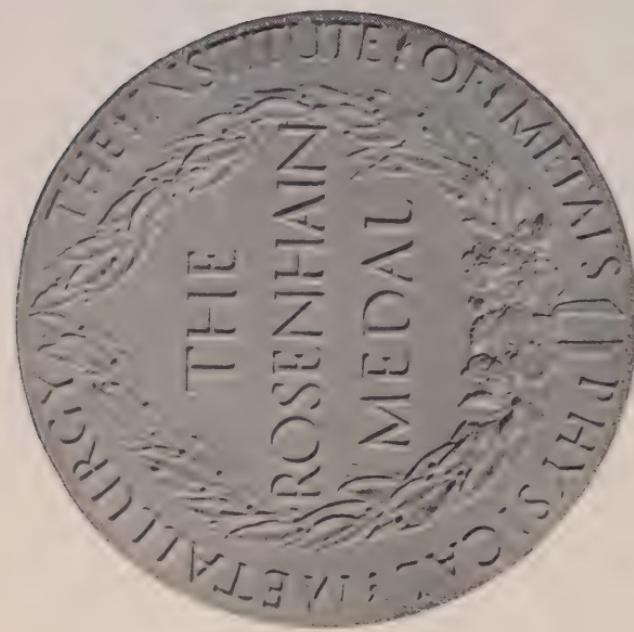
#### *As Ordinary Members*

- BUNCE, Ronald Gordon, Metallurgist, Pirelli General Cable Works, Ltd., Eastleigh, Hants.
- CAREY, Edward Samuel, B.Met., Metallurgist, Mellowes and Co., Ltd., 40 Corporation St., Sheffield 3.
- CARLSON, Theodore H., B.Eng., Assistant Plant Metallurgist, Bridgeport Brass Company, South Holt Road, Indianapolis, Ind., U.S.A.
- CLEAVES, Harold E., B.S., Metallurgy Division, National Bureau of Standards, Washington 25, D.C., U.S.A.
- EDMAN, Ernst Erik Teodor, Engineer, Telefon AB.L.M. Ericsson, Stockholm 32, Sweden.
- FISHER, John S., E.E., President, General Metals Powder Company, 130 Elinor Avenue, Akron 5, O., U.S.A.
- GRIFFITHS, Sidney Howard, Metallurgist and Research Engineer, John Thompson, Ltd., Wolverhampton.
- HASTINGS, Wallace H., Superintendent, Chicago Extruded Metals Company, 1602-1642, South 54th Avenue, Cicero 50, Ill., U.S.A.
- HELLBOM, Kjell Bertil, Metallurgist, Söderfors Steel Works, Söderfors, Sweden.
- MAMET, Charles Jean Valérie Adèle, Directeur-Gérant, S.A. de Construction des Appareils pour L'Industrie, 80 Chaussée de Haren, Vilvorde, Belgium.
- MILLER, Frank C., Vice-President, Chicago Extruded Metals Company, 1602-1642, South 54th Avenue, Cicero 50, Ill., U.S.A.
- MORRIS, Cecil Edward, Chief Chemist, Universal Metal Products, Ltd., Langley Road, Salford 6, Lancs.
- ROCCA, Roberto, D.Sc., Consulting Engineer, Techint, Piazza Crispi 3, Milan, Italy.

#### *As Junior Member*

- JOHNSTONE, S. T. Murray, B.Met.E., Scientist, Department of Supply, Melbourne, Australia.

NEWS AND ANNOUNCEMENTS



THE WALTER ROSENHAIN MEDAL (Full-Size).

Artist : E. CARTER PRESTON.

The Rosenhain Medal, the first recipient of which is Professor G. V. Raynor (see p. 73), is awarded annually for outstanding contributions in the field of physical metallurgy by persons under 45 years of age.

## NEWS AND ANNOUNCEMENTS

### *As Student Members*

- DOYLE, Nicholas Edward, B.S., Research Assistant, Rensselaer Polytechnic Institute, Troy, N.Y., U.S.A.
- DUCKFIELD, Baden John, Student of Metallurgy, University College, Swansea.
- EATON, Norman Frank, Student of Metallurgy, University College, Swansea.
- EDWARDS, Derek, Student of Metallurgy, University College, Swansea.
- HINETT, Oliver John, Electrical Testing Laboratory, J. Sankey and Sons, Ltd., Manor Road Works, Ettingshall, Wolverhampton.
- LOCKYER, Edward Brian, Student of Metallurgy, College of Technology, Manchester.
- MCPHERSON, Donald Lloyd, Student of Metallurgy, University of Toronto, Canada.
- RUCKMAN, James Christopher, Assistant Experimental Officer, Atomic Energy Research Establishment, Harwell, Berks.
- VICKERS, Harold, Student of Metallurgy, King's College, Newcastle-on-Tyne.
- WILLIAMS, Neville Thomas, Student of Metallurgy, University College, Swansea.

## PERSONALITIES

### New President, Vice-Presidents, and Members of Council

#### PROFESSOR A. J. MURPHY, M.Sc., F.I.M. (President)

Alfred John Murphy was born in 1901 and educated at Altrincham High School and the University of Manchester, at which he graduated with First Class Honours in Chemistry in 1920. After leaving the University he carried out metallurgical research first in the University of Wales (Swansea) from 1920 to 1923 and later under Dr. Walter Rosenhain in the Metallurgy Department of the National Physical Laboratory from 1923 to 1931.

In 1931 Professor (then Mr.) Murphy was appointed Chief Metallurgist to Messrs. J. Stone and Co., Ltd., London, and was made a Director of the firm in 1946. He became also a Director and Chairman of Stone-Fry Magnesium, Ltd., of London, and a Director of Light-Metal Forgings, Ltd., of Oldbury.

Professor Murphy was appointed to the Chair of Industrial Metallurgy in the University of Birmingham in January 1950, thereupon



## NEWS AND ANNOUNCEMENTS

resigning his directorships. He is the author of numerous papers on non-ferrous and ferrous metallurgy and metallographic methods, several of which have been published in the Institute's *Journal*.

Elected a Member of Council of the Institute in 1939, Professor Murphy was elevated to the Vice-Presidency in 1943 and remained on the Council until 1946, when he retired in accordance with the Articles of Association; he was again elected a Member of Council in 1947 and a Vice-President in 1948. From 1938 to 1946 he was Chairman of the Publication Committee, and, in that capacity, performed outstanding service to the Institute. He was one of the Institute's two original representatives on the Joint Committee for National Certificates in Metallurgy.

Professor Murphy is Chairman of the Inter-Service Metallurgical Research Council, a Member of Council and former Chairman of the Research Board of the British Non-Ferrous Metals Research Association, a member of committees of the British Standards Institution, and a Fellow and Vice-President of the Institution of Metallurgists. He is also a member of several other societies, including the Société Française de Métallurgie and the Institute of British Foundrymen.

### MR. A. B. GRAHAM (Vice-President)

Alexander Barbour Graham was born in Scotland in 1889 and educated at Hutcheson's Grammar School and the Royal Technical College, Glasgow.

He was trained as an engineer with the North British Locomotive Co., Ltd., Glasgow, later transferring to the Plant and Production Department of Messrs. G. and J. Weir, Ltd., Cathcart, the well-known pump makers. When this concern became sole concessionaire for the sale, in Britain and on the Continent, of the products of the International Nickel Company Inc., New York, Mr. Graham was selected to work on the development of Monel for engineering and other applications, and was, for a number of years, Works Superintendent of the plant created for that purpose. During this period he gained considerable metallurgical experience, and was successful in applying extrusion to pure nickel and the higher-nickel alloys,



including Monel and austenitic stainless steel. For some years, he acted as consultant on extrusion of these types of materials to the Schloemann concern in Germany, and later for a time acted in a similar capacity with the Loewy Engineering Co., Ltd.

## NEWS AND ANNOUNCEMENTS

In 1932 Mr. Graham joined Henry Wiggin and Co., Ltd., when the business, which had by that time grown into a separate company (known as Monel-Weir, Ltd.), was acquired by The Mond Nickel Co., Ltd. For the past 18 years he has been in charge of Henry Wiggin and Company's Glasgow Works and recently qualified for membership of the Inco Quarter Century Club, by virtue of 25 years' service with associated companies of the International Nickel Company of Canada, Ltd.

Mr. Graham is a member of the Institution of Engineers and Shipbuilders in Scotland, was Chairman of the Scottish Local Section of the Institute of Metals in 1947 (the year of the memorable Autumn Meeting in Scotland), and is a member of the Mineral Resources Panel of the Scottish Council (Development and Industry). He was elected a member of the Institute in 1938.

### MR. P. V. HUNTER, C.B.E. (Vice-President)

Philip Vassar Hunter entered Faraday House in January 1900, and on completing his course in 1903 was awarded an honours diploma. Subsequently he obtained an Assistant Engineer's appointment with the late Robert Hammond, the well-known consulting engineer and electrical pioneer. A year later Mr. Hunter joined the staff of Merz and McLellan at Newcastle-on-Tyne, staying with them for fifteen years and becoming the head of their Electrical Department, in which position he had considerable experience of power-stations, waste-heat generating-stations, and railway electrification schemes in South America and Australia.

During the 1914-18 war Mr. Hunter was engaged upon technical matters of national importance, and in 1917 was lent to the Admiralty for service with the Anti-Submarine Division of the Naval Staff, as the engineering member of the committee specially concerned with the development of methods of location and destruction of enemy submarines. In the course of this work the now famous "Asdic" gear was evolved.

On the completion of his work at the Admiralty Mr. Hunter joined Callender's Cable and Construction Co., Ltd., in 1919 as Chief Engineer and later became well known as the inventor of the "split-conductor" and "four-conductor" methods of automatic cable protection. These systems were widely accepted by power companies, and are in



## NEWS AND ANNOUNCEMENTS

constant use today. In 1938 he was appointed a director of the Callender Company.

For many years Mr. Hunter served on the Council and on committees of the Institution of Electrical Engineers and also represented the Institution on national committees. In 1933 he was elected President of the I.E.E., and in his presidential address he discoursed on important developments in the use of cables for rural distribution and also on the possibility of replacing the 132-kV. grid overhead lines by underground power cables. In January 1951 he was elected an Honorary Member of the Institution.

Mr. Hunter, who is now joint Deputy Chairman of British Insulated Callender's Cables, Ltd., was the Company's Engineer-in-Chief from 1945 to 1949. He has been Chairman of the National Register of Electrical Installation Contractors since 1925, and of the Wiring Regulations Committee of the I.E.E. since 1934. He became a member of the Institute of Metals in 1947.

### MR. K. W. CLARKE, F.I.M. (Member of Council)

Kenneth William Clarke was born in Essex in 1911 and educated at St. Mary's College, Harlow. On leaving school in 1928 he passed the entrance examination into the R.A.F. Cadet College, but was rejected on medical grounds. His interest in aviation influenced him in taking an apprenticeship with The de Havilland

Aircraft Co., Ltd., where he was transferred to the Laboratory in 1929. The training included an intensive course in the Research Laboratories of the English Steel Corporation, Ltd., during which period he attended evening classes in applied metallurgy at Sheffield University. In 1931 he went to the Research Laboratories of High Duty Alloys, Ltd., for practical experience in light-alloy manufacture and control. At this time he also took a metallurgy course at Northampton Polytechnic, passing the final examination in 1934, and being awarded the John Fry prize in Applied Chemistry.

In 1933 Mr. Clarke was appointed Chief Metallur-

gist to The de Havilland Aircraft Co., Ltd., and became Chief Metallurgist to The de Havilland Enterprise when the engine and propeller companies were formed towards the end of the war. This position he holds at the present time.

He is a member of various committees of the Society of British Aircraft Constructors, British Standards Institution, and Ministry of Supply on light alloys, steels, and heat-resisting materials,



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including the Heat-Resisting Materials Sub-Committee of the Inter-Service Metallurgical Research Council. He is at present Chairman of the S.B.A.C. Materials Committee.

Mr. Clarke was elected a Member of the Institute of Metals in 1937, an Associate of the Institution of Metallurgists in 1945, and a Fellow of the Institution in 1951.

### MR. CHRISTOPHER SMITH, F.I.M. (Member of Council)

Christopher Smith was born in 1898 and was educated at King Edward VI Grammar School, Aston, Birmingham.

He joined the technical staff of James Booth and Co., Ltd., in 1914 as a laboratory assistant, and later, with the development of Duralumin, was drawn into much of the early investigation associated with the development, in this country, of aluminium alloys. This work involved the casting, extrusion, rolling, forging, and general working of the now well-established alloys. His interests also covered the production of copper-base alloys and all magnesium alloys in wrought form. From 1935 until 1950 Mr. Smith was Chief Metallurgist to the Company, and in January 1951 he was appointed Works Superintendent.

Mr. Smith was elected a Member of the Institute of Metals in 1938, and is also a Fellow of the Institution of Metallurgists. He is a Member of the Research Board of the British Non-Ferrous Metals Research Association, and participates in the activities of a number of committees of the Aluminium Development Association, the British Welding Research Association, and the British Standards Institution.

Mr. Smith contributed a paper entitled "The Extrusion of Aluminium Alloys" to the Symposium on "Metallurgical Aspects of the Hot Working of Non-Ferrous Metals and Alloys" held last March, and for this paper he has recently been awarded the W. H. A. Robertson Medal.

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#### Rosenhain Medallist

#### PROFESSOR G. V. RAYNOR, M.A., D.Sc.

Geoffrey Vincent Raynor, to whom the first award of the Walter Rosenhain Medal has just been made, was educated at Nottingham High School and Keble College, Oxford, to which he proceeded



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after the award of the Senior Scholarship of the County of Nottingham.

At Oxford he obtained a First Class in the Honour School of Natural Science (Chemistry) and qualified for the degree of B.Sc. in 1936. From 1936 to 1938 he carried out research work, mainly on the constitution of magnesium alloys, as Research Assistant to Dr. W. Hume-Rothery, F.R.S., in the Inorganic Chemistry Laboratory of Oxford University. As a result of this work he obtained the degree of D.Phil. early in 1939, and received a Department of Scientific and Industrial Research Senior Research Award for further research at Oxford. He was continuously engaged in metallurgical research at the Inorganic Chemistry Laboratory, where he held the post of Lecturer and Demonstrator in Chemistry until December 1944. The period from 1940 onward was occupied in extra-mural research for the Ministry of Supply and the Ministry of Aircraft Production, mainly in connection with titanium-steels and the constitution of aluminium alloys, in collaboration with Dr. Hume-Rothery.



In 1944, Dr. Raynor was appointed to an Imperial Chemical Industries Research Fellowship in Metallurgy at Birmingham University and took up his duties there, under the general supervision of Professor D. Hanson, D.Sc., in January 1945. He continued with research on problems related to the constitution of alloys, and directed the work of a group of investigators on this subject. He was appointed to a Senior Lectureship in Metallurgy at Birmingham University in March 1947, and to the Readership in

Theoretical Metallurgy in the autumn of the same year. He received the Beilby Memorial Award for 1947, and was awarded the degree of D.Sc. of Oxford University in the following year. His appointment as Professor of Metal Physics at Birmingham University was made in 1949.

Professor Raynor has published about 70 papers, in collaboration with colleagues and research students, on the theories and properties of alloys in the *Proceedings of the Royal Society*, *Philosophical Magazine*, *Journal of the Institute of Metals*, *Journal of the Iron and Steel Institute*, *Transactions of the Faraday Society*, *Journal of the Royal Aeronautical Society*, the *Journal of Scientific Instruments*, and others, and is the author of "An Introduction to the Electron Theory of Metals" (Institute of Metals Monograph and Research Series No. 4), which is in its second printing, and of seven pamphlets of the Institute of Metals Annotated Equilibrium Diagram Series, on the constitutions of the systems Al-Cu, Al-Mg, Al-Zn, Be-Cu, Cu-Sn, Cu-Zn, and Pb-Sn.

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He is an official consultant to the Department of Atomic Energy. He is a Member of Council of the Institute of Metals and a member of its Metal Physics and Publication Committees. He is also a member of a number of committees of other bodies. He is a Fellow of the Royal Institute of Chemistry, a Fellow of the Institute of Physics, an Associate of the Institution of Metallurgists, a Fellow of the Royal Society of Arts, and a Member of the Iron and Steel Institute. He joined the Institute of Metals in 1936.

In 1943 Professor Raynor married Emily Jean Brockless, and has two sons. His principal non-scientific interests are rowing (he is a member of several Midland rowing clubs) and rugby football.

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### RATES OF SUBSCRIPTION TO THE INSTITUTE

The rates of subscription to the Institute of Metals are given below, with, in parentheses, the reduced rates of subscription applicable to members of the Iron and Steel Institute or the Institution of Metallurgists. There is no entrance fee. Particulars of membership may be obtained from the Secretary, 4 Grosvenor Gardens, London, S.W.1.

Ordinary Members: £4 4s. (£3 13s. 6d.) p.a.

Junior Members: £2 15s. (£2 10s.) p.a.

Student Members: £1 15s. (£1 11s.) p.a.

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### PERSONAL NOTES

MR. I. A. BAILEY has joined the Board of The Mond Nickel Co., Ltd.

PROFESSOR P. G. BASTIEN, D.Sc., Scientific Director of Schneider and Co., has been elected President of the Société des Ingénieurs Soudeurs and President of the 5th Section (Applied Physics) of the Société des Ingénieurs Civils de France.

MR. B. L. BENBOW has retired from his position as Manager of the Cleveland Wire Works of The General Electric Co., a post he had held for 37 years.

MR. G. W. BOOTH, Managing Director of the Tyseley Metal Works, Ltd., Birmingham, has been elected President of the British Bronze and Brass Ingot Manufacturers' Association for the forthcoming year.

MR. A. DE S. BRASUNAS, formerly at the Massachusetts Institute of Technology, has been appointed metallurgist at the Oak Ridge, Tenn., plant of the Union Carbide and Carbon Corp.

MR. C. DINSDALE has been transferred from the newly formed Research Department of British Railways to the Headquarters Staff of the Mechanical and Electrical Engineer, Doncaster, having been appointed Regional Works Metallurgist (Eastern and North-Eastern Regions).

Mr. J. D. ELLIS retired on 30 June 1950 after over 20 years as London Manager of the Birmingham Battery and Metal Company, Ltd. His address is now Grey Tiles, Lavant, near Chichester, Sussex.

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DR. G. L. EVANS, lecturer at the Royal School of Mines, has been awarded a Nuffield Travelling Fellowship in Extraction Metallurgy and left for a tour of plants in the United States and Canada on 8 March.

DR. W. L. FINLAY has been appointed Research Manager of Rem-Cru Titanium, Inc., Bridgeport, Conn., a manufacturing company jointly owned by the Remington Arms Co., Inc., and the Crucible Steel Company of America.

MR. D. GORDON-JONES's address is now Precious Metals Development, Ltd., 36 Staib Street, New Doornfontein, Johannesburg, South Africa.

MR. KENNETH HALL, Managing Director of the Northern Aluminium Co., Ltd., has been elected first Chairman of the newly formed Aluminium Industry Council, the primary object of which is to provide liaison for consultations between all branches of the industry on matters of general policy.

MR. N. B. HARVEY has been appointed Technical Assistant with The Aston Chain and Hook Co., Ltd., Birmingham. He was previously with Imperial Chemical Industries, Ltd., Metals Division, Witton, Birmingham.

MR. N. HAWKINS has recently graduated from Manchester University with 2nd class Honours in Metallurgy and has taken up a post as a research metallurgist with the English Electric Co., Ltd., Stafford.

MR. W. C. F. HESSENBERG has been appointed Deputy Director of the British Iron and Steel Research Association. He will continue to act also as Head of the Association's Mechanical Working Division, the position he has held since 1947.

DR. F. R. MORRAL, until recently Associate Professor of Materials Engineering at Syracuse University, has been appointed head of the X-ray diffraction department of the metallurgical research division of the Kaiser Aluminum and Chemical Corporation, Spokane, Wash.

DR. L. B. PFEIL has joined the Board of The Mond Nickel Co., Ltd.

DR. A. G. RAMSAY has joined the Board of The Mond Nickel Co., Ltd.

MR. H. H. SYMONDS has resigned his position as Scientist-in-Charge of the Midland Laboratory Guild, Birmingham, and become Foundry Manager with Messrs. H. B. Barnard and Sons, Ltd., Dudley Port, Staffs. He has also been elected a member of the Technical Committee of the British Bronze and Brass Ingots Manufacturers' Association.

MR. E. J. WILLIAMS has left the employ of the North Thames Gas Board and joined the staff of the British Iron and Steel Research Association. He is at present working on their behalf at the National Physical Laboratory, Teddington.

DR. S. A. WRÓBEL has been appointed Research Manager to Mineral Recovery, Ltd.

## NEWS AND ANNOUNCEMENTS

### MARRIAGE

MR. A. PRINCE was married on 27 January 1951 to Miss Sheila Mary Jacklin of Sheffield. His address is now 36 Belmont Avenue, Wolviston, near Billingham, Co. Durham.

### DEATHS

The Editor regrets to announce the deaths of:

MR. KENNETH WILLIAM CAULFIELD, Research Metallurgist with the Tin Research Institute since 1942, on 25 January 1951.

MR. ROBERT CROOKS STANLEY, Chairman of the International Nickel Company of Canada, Ltd., on 12 February 1951. He was awarded the Institute of Metals (Platinum) Medal in 1948.

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*Note:* Will members (in addition to informing the Institute's administrative department of changes of address, occupation, &c.) kindly notify the Editor, *separately*, of all changes of occupation, appointments, awards of honours and degrees, &c., as these matters interest their fellow members.

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## NEWS OF LOCAL SECTIONS AND ASSOCIATED SOCIETIES

### LONDON LOCAL SECTION

At a joint meeting with the Society of Chemical Industry, held at the London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C.1, on 22 January 1951, Dr. F. P. BOWDEN, of Cambridge University, read a paper entitled

#### Friction and Lubrication of Solids

The lecture began with a brief account of some of the physical methods being used at Cambridge to study the surface contour and the surface irregularities on solids. These are: (a) stylus methods, (b) oblique metallurgical sectioning, (c) optical interferometry, and (d) electron microscopy. All these methods show that solid surfaces, even when most carefully prepared, have irregularities which are very large compared with molecular dimensions. Methods of estimating the real area of contact between solids were described, and it was shown that the real area of contact is extremely small, is almost independent of the size of the surfaces and is proportional to the load between them. With metals and with most other solids, pressure in the region of contact is sufficiently great to cause plastic deformation; it is the localized adhesion at the points of contact which is largely responsible for the friction. The use of artificially radioactive metals for studying the adhesion and the metallic transfer was described.

An account was then given of the action of boundary lubricant films in reducing the friction and adhesion. The importance of chemical attack of the surfaces by the lubricant film was demonstrated.

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Finally, the influence of temperature on the behaviour of boundary films was described. It was shown that with lubricant films, the transition from the solid to the liquid state is accompanied by a large increase in friction and metallic interchange. Some recent experiments in the laboratory have shown that at a still higher temperature there is a second transition (which may, perhaps, correspond to a transition from the liquid to the gaseous state or to a desorption of the film). Above this second transition, the friction and wear are extremely high and are similar to those observed with unlubricated metals.

At a meeting held at 4 Grosvenor Gardens on 8 February 1951, Mr. E. W. COLBECK, of Hadfields Ltd., Sheffield, read a paper entitled :

### The Metallurgy of Uranium

A brief survey of the occurrence, mineral forms, and economic deposits of the metal was followed by an account of a typical method of extracting uranium from its ores. Mr. Colbeck next gave an account of the various methods which have been attempted for the preparation of metallic uranium, and then went on to deal with the properties of uranium metal, drawing attention to the serious discrepancies existing in the literature and pointing out that it was only in very recent times, since the beginning of the last war, that metal of high purity had been available to investigators.

The physical, chemical, and mechanical properties of the metal were then described and a comparison with those of other elements in Group VI of the Periodic Table was made. Reference was made to special difficulties that arise in melting uranium and its alloys, and finally a review of published literature on alloy systems and some account of the metallography of the metal was given.

### SOUTH WALES LOCAL SECTION

At a meeting held at University College, Swansea, on 16 January 1951, Mr. A. R. POWELL, of Johnson, Matthey and Co., Ltd., read a paper entitled :

### Recent Developments in the Production of Some of the Rarer Metals

Methods for the production of the rarer metals were classified and their application to the production of particular metals indicated. The great difficulty of avoiding contamination with refractories, reducing materials, and gases during the preparation of some of the rarer metals was pointed out, and some possibilities for overcoming these difficulties were briefly discussed. Recent work in this country and in America on the production of beryllium, vanadium, indium, gallium, germanium, and rhenium was then described in detail.

On 6 February 1951, Mr. M. RODDAN read a paper entitled :

### Oil Firing of Non-Ferrous Metallurgical Furnaces

The speaker explained that the technique of oil firing was the same whatever the application, but that different industries made their own individual demands and in the case of the non-ferrous industries, where relatively low temperatures are required, the emphasis was, generally speaking, on control of furnace atmosphere.

## NEWS AND ANNOUNCEMENTS

He then outlined briefly how the various commercial grades of petroleum fuel oil are produced from the crude state to a specification which results in ease of handling and consistency in burning, and went on to explain the precautions the user should take to ensure that the heavier grades reached the actual burner nose at the recommended temperature in order to obtain satisfactory combustion conditions.

The process of combustion in an oil flame was outlined, and the importance of efficient atomization was emphasized. It was pointed out that 1 cu. ft. of fuel oil contains over 2000 times as many British thermal units as 1 cu. ft. of town gas, and therefore accurate control was mechanically more difficult.

A description of a number of melting and heating processes followed, illustrated by lantern slides, and typical consumption figures were given. These were expressed in terms of percentage by weight, gallons, and therms per ton, and also of thermal efficiency. The speaker ended with a plea for more attention to burner equipment, instrumentation, and automatic control.

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## JOINT ACTIVITIES

### MOND NICKEL FELLOWSHIPS

The Mond Nickel Fellowships Committee invites applications for the award of Mond Nickel Fellowships for the year 1951. Awards will be made to selected applicants of British nationality, educated to University degree or similar standard, though not necessarily qualified in metallurgy, who wish to undergo a programme of training in industrial establishments; they will normally take the form of travelling Fellowships—awards for training at Universities may be made in special circumstances. There are no age limits, though awards will seldom be given to persons over 35 years of age. Each Fellowship will occupy one full working year. The Committee hopes to award up to five Fellowships each year of an average value of £750 each.

Mond Nickel Fellowships will be awarded in furtherance of the following objects :

(a) To allow selected persons to pursue such training as will make them better capable of applying the results of research to the problems and processes of the British metallurgical and metal-using industries.

(b) To increase the number of persons who, if they are subsequently employed in executive and administrative positions in the British metallurgical and metal-using industries, will be competent to appreciate the technological significance of research and its results.

(c) To assist persons with qualifications in metallurgy to obtain additional training helpful in enabling them ultimately to assume executive and administrative positions in British metallurgical and metal-using industries.

(d) To provide training facilities whereby persons qualified in Sciences other than Metallurgy may be attracted into the metallurgical field and may help to alleviate the shortage of qualified metallurgists available to industry.

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Applicants will be required to state the programme of training in respect of which they are applying for an award, as well as particulars of their education, qualifications, and previous career. Full particulars and form of application can be obtained from: The Secretary, Mond Nickel Fellowships Committee, 4 Grosvenor Gardens, London, S.W.1.

Completed application forms will be required to reach the Secretary of the Committee not later than 1 June 1951.

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## OTHER NEWS

### INTERNATIONAL SYMPOSIUM ON ABRASION AND WEAR

An International Symposium on Abrasion and Wear will be held in November 1951 at Delft by the Rubber-Stichting in order to celebrate the opening of its new building.

The first day of the Symposium will be devoted to general aspects of abrasion and wear, including the problems connected with friction and lubrication. The second day will be devoted to the abrasion and wear of metals, plastics, rubber, and other materials. Scientists from various countries will present papers at this Symposium, which will be international in character. The languages will be English and French.

Persons interested are requested to apply for fuller details to the Secretary, Dr. H. C. J. de Decker, P.O. Box 66, Delft, Holland.

### SOME RECENT ADVANCES IN THEORETICAL METALLURGY

An advanced course of about nine lectures on this subject, each of which will be followed by a discussion, will be given in the Technical College, Bradford, on Thursdays, at 7 p.m., commencing on 10 May 1951. The lectures will be given by Dr. E. W. Fell, Senior Assistant in Metallurgy in the College, Mr. W. R. Moore, Senior Assistant in Physical Chemistry, and Mr. R. B. Bentley, Assistant Lecturer in Physical Chemistry.

The aim of the course is to present some recent advances in theoretical metallurgy, with particular reference to their practical applications. The course is designed particularly for practising metallurgists and advanced students, and will provide an opportunity to keep abreast with modern developments and their practical application. The following subjects will be specifically dealt with: (a) the atomic and electronic structure of metals; (b) applications of electronic and atomic theories to the structure and properties of alloys; and (c) some applications of thermodynamics to process metallurgy.

The fee for the Course is £1 5s. od. Those interested should write to the Principal, Technical College, Bradford, for forms of application, which should be completed and returned as soon as possible.

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## NEWS AND ANNOUNCEMENTS

### DIARY FOR MAY

#### THE INSTITUTE

##### WEDNESDAY, 23 MAY

**41st May Lecture.**—Sir John Anderson. (The Royal Institution, 21 Albemarle Street, London, W.1, at 6.30 p.m.)

#### OTHER MEETINGS

##### TUESDAY, 1 MAY

**Electrodepositors' Technical Society, Midlands Centre.**—S. Wernick : "The Protective Quality of Nickel-Chrome Deposits". (James Watt Memorial Institute, Great Charles Street, Birmingham 3, at 6.30 p.m.)

##### THURSDAY, 3 MAY

**Leeds Metallurgical Society.**—Annual General Meeting, followed by Junior Members' papers. (Chemistry Department, The University, Leeds 2, at 7 p.m.)

##### THURSDAY, 17 MAY

**Institution of Mining and Metallurgy.**—General Meeting. (Geological Society, Burlington House, Piccadilly, London, W.1, at 5 p.m.)

##### MONDAY, 21 MAY

**Electrodepositors' Technical Society, London Centre.**—A. W. Hothersall : "Internal Stress in Electrodeposits". (Northampton Polytechnic, St. John Street, London, E.C.1, at 6 p.m.)

##### WEDNESDAY, 30 MAY

**Institution of Production Engineers, Shrewsbury Sub-Section.**—A. Short : "Commercial Possibilities of the Lost-Wax Process". (Technical College, Shrewsbury, at 7.30 p.m.)

#### APPOINTMENTS VACANT

**APPLICATIONS** are invited by the Division of Atomic Energy (Production) for the following appointments in the Department of Metallurgy, Risley, near Warrington, Lancs :

Post MA/6.—**LABORATORY MANAGER** to take charge of metallurgical investigations connected with the development of atomic-energy production processes. Candidates must have had experience in organizing and directing metallurgical development work and be at least 30 years of age.

Post MEI/1.—**PRINCIPAL PHYSICIST** to take charge of a laboratory applying physical methods to metallurgical investigations, including the design and development of measuring instruments. Responsible post-graduate or research experience is essential.

Post MEI/20.—**PHYSICAL METALLURGIST** to take charge of metallographic laboratories engaged on investigations essential to the development of atomic-energy production processes. Candidates must have had post-graduate research experience and/or two or three years' responsible laboratory experience in physical metallurgy.

Candidates must have a good honours degree in either metallurgy, physics, or chemistry for post MA/6; an honours degree in physics for post MEI/1, and an honours degree in either metallurgy or physics for post MEI/20. Alternatively, they must have associateship of either the Institution of Metallurgists, the Institute of Physics, or the Royal Institute of Chemistry, or equivalent qualifications.

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Salaries will be assessed according to qualifications and experience within the ranges Post MA/6 £1420-£1650 p.a. and Posts MEI/1 and MEI/20 £960-£1295 p.a. or £670-£860 p.a. Rates for women are somewhat lower. The posts will carry F.S.S.U. benefits. Applications to Ministry of Supply, D.At.En. (P), Risley, near Warrington, Lancs, quoting reference of post applied for.

**APPLICATIONS** are invited by the Division of Atomic Energy (Production) for the following appointments in the Department of Metallurgy, Windscale Works, Sellafield, Cumberland:

Post MC/1.—**WELDING METALLURGIST** to take charge of the metallurgical department's welding laboratory. Candidates must have had several years' experience in the development of welding techniques and cognate metallurgical problems.

Posts MC2/6.—**WELDING ENGINEERS** to conduct investigations into welding techniques of ferrous and non-ferrous materials. Some experience of modern welding methods and equipment is essential.

Candidates must have either an honours degree in engineering, corporate membership of the Institution of Mechanical or Electrical Engineers, or equivalent qualifications. Alternatively, for post MC/1, candidates must have either an honours degree in metallurgy or physics, associateship of the Institution of Metallurgists or the Institute of Physics, or equivalent qualifications.

Salaries will be assessed according to qualifications and experience within the ranges Post MC/1 £997-£1192 p.a. and Posts MC2/6 £720-£960 p.a. Houses will be available within a reasonable period for the successful candidates, if married. The introduction of a superannuation scheme is under consideration. Applications to Ministry of Supply, D.At.En. (P), Risley, near Warrington, Lancs, quoting reference of post applied for.

**METALLURGISTS, PHYSICISTS, AND PHYSICAL CHEMISTS** required by the Department of Metallurgy, Division of Atomic Energy (Production), to undertake a wide range of duties in normal and radioactive metallurgy, including physical metallurgy, crystallography, physics, properties of metals and alloys, corrosion, powder metallurgy, and chemical thermodynamics. There are vacancies at Risley, near Warrington; Salwick, near Preston; and Windscale Works, Sellafield, Cumberland.

Candidates must either have an Honours degree in metallurgy, physical chemistry, or physics; associateship of the Institution of Metallurgists, the Royal Institute of Chemistry, or the Institute of Physics; or have equivalent qualifications. For the higher posts, candidates must be at least 26 years of age and have had at least three years' postgraduate research experience. For the lower posts, applications will be accepted from students who expect to obtain degrees this year.

Salary will be assessed according to qualifications and experience within the ranges £670-£860 p.a. and £380-£620 p.a. Rates for women are somewhat lower. The posts will carry F.S.S.U. benefits. Applications to Ministry of Supply, D.At.En. (P), Risley, near Warrington, Lancs, stating post applied for and location preferred.

**ENGINEER OR METALLURGIST** aged between 20 and 30 with some experience in powder metallurgy required by large organization concerned with manufacture of diamond tools in Johannesburg. Salary £700-£1000, according to qualifications. Further details and preliminary interview can be had in London. Box No. 303, Institute of Metals, 4 Grosvenor Gardens, London, S.W.1.

**TECHNICAL ASSISTANT** urgently required for Metallurgical Research Laboratory (Magnesium Alloys) in the Manchester District. Salary according to experience and qualifications. Candidates should preferably hold A.M.C.T., L.I.M., Higher National Certificate, City and Guilds in Metallurgy, or Inter.B.Sc. Industrial experience would be useful. Applications to Secretary, Magnesium Elektron Ltd., Clifton Junction, Manchester.

**YOUNG METALLURGIST** with degree and some experience of metallography urgently required for research work on light alloys. Position calls for initiative and ability. Apply, stating age, qualifications, and experience to Secretary, Magnesium Elektron Ltd., Clifton Junction, Manchester.

**METALLURGICAL CHEMIST** or Metallurgist wanted for Engineering Works in the South of England to take charge of laboratory and to assist Chief Metallurgist and Foundry Manager. Should be conversant with the analysis and micrography of steel, cast iron, copper-base and aluminium alloys, as well as foundry sand control. Apply, stating age, experience, qualifications, and salary required, to Chief Metallurgist, Box No. 307, Institute of Metals, 4 Grosvenor Gardens, London, S.W.1.

**TIN RESEARCH INSTITUTE.** Metallurgist (graduate) required for research on physical metallurgy of tin-containing alloys. Commencing salary £400-£550 according to qualifications and experience. Good prospects for advancement. Superannuation under F.S.S.U. Applications to the Director, Tin Research Institute, Fraser Road, Perivale, Greenford, Middx.

**TECHNICAL LIBRARIAN** (Lady) required. Previous experience in abstracting and indexing technical literature essential. Permanent post. Salary according to qualifications. Applications, giving age and full particulars of experience, to Secretary, Copper Development Association, Kendals Hall, Radlett, Herts.

**EXPERIENCED METALLOGRAPHER** required for Nelson Research Laboratories of the English Electric Co., Ltd., Stafford. Applicants should possess at least the National Certificate in Metallurgy, and have a minimum of three years' practical experience. Salary according to qualifications and experience. Write giving full details quoting ref. 824A to Central Personnel Services, English Electric Co., Ltd., 24/30 Gillingham Street, London, S.W.1.

# THE INSTITUTE OF METALS

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## INSTITUTE NEWS AND ANNOUNCEMENTS

### ANNUAL AUTUMN MEETING, ITALY, 16-25 SEPTEMBER 1951

By the time this issue of the *Journal* appears, all Members should have received a leaflet giving full particulars of the Autumn Meeting in Venice. The leaflet contains details of the works to be visited in the Venice, Milan, and Florence regions, and of the cost of the meeting with and without the optional extensions. It is hoped that a large number of members and ladies will participate in this meeting.

### SPECIAL MEETING, LONDON, 17 and 18 OCTOBER 1951

As a service to those members who, for various reasons are not able to take part in the Autumn Meeting in Italy, a special General Meeting will be held in London on Wednesday, 17 October, and the morning of Thursday, 18 October 1951.

On the first day there will be two technical sessions for the discussion of papers, and, in the evening, a conversazione and exhibition at the Institute's offices. The following morning will be occupied with visits to works and laboratories in the London area.

### AUTUMN MEETING, OXFORD, 1952

The Council has decided that the Autumn Meeting next year shall be held in Oxford from Monday, 15 September, to Friday, 19 September.

### PAPER BY SCHEUER, WILLIAMS, AND WOOD: ADDENDUM

The following paragraph should be added at the end of the paper "The Effect of Copper, Silicon, and Magnesium on the Mechanical Properties of Aluminium Alloys of the D.T.D. 424 Type", by E. Scheuer, S. J. Williams, and J. Wood, published last month (*J. Inst. Metals*, 1951, **79**, (2), 57-72) :

"It is surprising that the relative order of the U.T.S. curves in Figs. 15 (a) and (b) with respect to the silicon and copper contents, is contrary to expectations. While this result was arrived at on the basis of the figures available, the authors are not satisfied that this order is actually the correct one. The differences involved are very small (<½ ton/in.<sup>2</sup>) and, as can be seen from Fig. 11, the

## NEWS AND ANNOUNCEMENTS

scatter for the individual magnesium contents is greater than the difference caused by the magnesium contents themselves. This uncertainty, however, does not materially influence the general picture as revealed by Fig. 15 (b); it concerns only the shifting of the left-hand border line of the useful concentration range."

### RESULTS OF APPEAL TO INDUSTRY FOR FINANCIAL SUPPORT (SECOND LIST)

Up to the time of going to press with this issue of the *Journal* (3 Apr.), the following subscriptions and donations had been received, additional to those published in the March issue (pp. 61-64). A further list is expected to be published shortly. Copies of the letter of appeal and the printed form of covenant may be obtained on application to the Secretary.

#### A. Annual Subscriptions, Under Covenant, for Not Less than 7 Years

<i>Subscriber</i>	<i>Net Subscription</i>	<i>Gross, Annually, after Recovery of Tax by the Institute</i>		
	<i>£ s. d.</i>	<i>£ s. d.</i>		
Mond Nickel Co., Ltd., The (incl. Birlec, Ltd.; Henry Wiggin and Co., Ltd.; and associated companies in the United States and Canada) . . . . .	275 0 0	500 0 0		
Metallo-Chemical Refining Co., Ltd. . . . .	100 0 0	181 18 0		
Rotol, Ltd. . . . .	25 0 0	40 5 0		
Hughes-Johnson Stampings, Ltd., The . . . . .	21 0 0	38 3 8		
Parkinson Stove Co., Ltd. . . . .	20 0 0	36 8 0		
Holroyd (John) and Co., Ltd. . . . .	13 15 0	25 0 0		
International Alloys, Ltd. . . . .	11 0 0	20 0 0		
Allen (Edgar) and Co., Ltd. . . . .	10 10 0	18 8 6		
Curran (Edward) Engineering, Ltd. . . . .	10 0 0	18 4 0		
Loewy Engineering Co., Ltd., The . . . . .	7 10 0	13 12 8		
Bound Brook Bearings (G.B.), Ltd. . . . .	5 0 0	9 1 10		

#### B. Annual Subscriptions to be Renewed (without obligation), But Not Under Covenant

	<i>£ s. d.</i>
Aluminium Laboratories, Ltd. (incl. Aluminium Union, Ltd.; Northern Aluminium Co., Ltd.; and Stand, Ltd.) . . . . .	200 0 0 *
N'changa Consolidated Copper Mines, Ltd. . . . .	150 0 0 (7)
Rhokana Corporation, Ltd. . . . .	150 0 0 (7)
Johnson, Matthey and Co., Ltd. . . . .	100 0 0 *
British Timken, Ltd. . . . .	25 0 0
Park Gate Iron and Steel Co., Ltd., The . . . . .	20 0 0 *
Sheffield Smelting Co., Ltd., The . . . . .	20 0 0 *
Fry's Diecastings, Ltd. . . . .	10 10 0 0 (7)
Linread, Ltd. . . . .	5 5 0 *
Langley Alloys, Ltd. . . . .	5 0 0 (7)

\* = received as an "annual subscription". Where a fixed number of subscriptions is promised, the total number is shown in brackets.

## NEWS AND ANNOUNCEMENTS

### C. Donations (Some of which May Be Renewed for Unspecified Amounts)

	<i>£ s. d.</i>
Johnson (Richard) and Nephew, Ltd. . . . .	100 0 0
Beralt Tin and Wolfram, Ltd. . . . .	52 10 0
Sankey (Joseph) and Sons, Ltd. . . . .	50 0 0
Rover Co., Ltd., The . . . . .	25 0 0
Hall and Pickles, Ltd. . . . .	20 0 0
Marconi's Wireless Telegraph Co., Ltd. . . . .	15 15 0
Perry Barr Metal Co., Ltd. . . . .	15 0 0
Brotherhood (Peter), Ltd. . . . .	12 12 0
Newey and Tayler, Ltd. (incl. Newey Brothers, Ltd.; and D. F. Tayler and Co., Ltd.) . . . . .	10 10 0
North Thames Gas Board . . . . .	10 10 0
Metro-Cutanit, Ltd. . . . .	10 0 0
Acton Bolt, Ltd. . . . .	5 5 0
Birmingham Associated Chain Co., Ltd., The . . . . .	5 5 0
Preece, Cardew, and Rider . . . . .	5 5 0

### ELECTION OF ORDINARY AND STUDENT MEMBERS

The following 18 Ordinary Members and 10 Student Members were elected on 12 March 1951 :

#### *As Ordinary Members*

- BAER, A. M., Rickling House, Quendon, Saffron Walden, Essex.
- BLACKWELL, Peter Alan, B.Sc., Metallurgist, Wild-Barfield Electric Furnaces, Ltd., Watford by-Pass, Watford, Hertfordshire.
- BRONKART, Jérôme Richard, Managing Director; (mail), 22 Avenue Pastur, Marcinelle, Belgium.
- CAVALLARO, Professor Leo, Dean of the Faculty of Mathematical, Physical, and Natural Sciences, and Director, Chemical Institute, University of Ferrara, Italy.
- CLARKE, Major William, J.P., Chief Inspector, Aero Zipp Fasteners, Ltd., Severn Road, Treforest Trading Estate, nr. Pontypridd, Glamorganshire.
- EVANS, Noel Hugh, Deputy Chief Inspector, Richard Thomas and Baldwins, Ltd., Light Alloy and Fabricating Section, Wern Works, Briton Ferry, Glamorganshire.
- FRASER, O. B. J., B.Sc., Assistant Manager, Development and Research Division, The International Nickel Company, Inc., 67 Wall Street, New York 5, N.Y., U.S.A.
- GEERAERTS, Victor Emmanuel, Manager, Fonderie Geeraerts, 52-56 rue de l'Instruction, Anderlecht, Bruxelles, Belgium.
- KNIGHT, Harry Jack, Chief Industrial Engineer, Shell-Mex and British Petroleum, Ltd., Lubricants Department, Shell-Mex House, London, W.C.2.
- LAMBOT, Honoré, Dr.es. Sci., Chef de Travaux, Institut de Cristallographie, Université de Liège, Belgium.
- LLOYD-LUCAS, Ernest, Managing Director, E. Silver (Bond Street), Ltd., 80 New Bond Street, London, W.1.
- MCDONNELL, John Gabriel, B.Sc.(Eng.), Technical Assistant (Crucibles and Refractories), Morgan Crucible Company, Ltd., Battersea Church Road, London, S.W.11.
- MAGNIETTE, Gaston, General Manager, Société Franco-Belge des Laminoirs et Tréfileries d'Anvers "LAMITREF", Société Anonyme, 1 rue Rubens, Anvers, Belgium.

## NEWS AND ANNOUNCEMENTS

- MAYO, Reginald George P., Technical Engineer, Impregnated Diamond Products, Ltd., Tuffley Crescent, Gloucester.
- MITCHELL, Evan J. K., Chief Metallurgist and Foundry Manager, Renfrew Foundries, Ltd., Hillington, Glasgow.
- DE ROSEE, Baron Frédéric, Administrateur-Directeur, Société des Usines à Cuivre de Moulins, pas Yvois, Belgium.
- STEVENS, Edward Owen, Technical Assistant to the Works Manager, Chemistry and Metallurgy, S. and R. J. Everett and Company, Ltd., 939 London Road, Thornton Heath, Surrey.
- WILLIS, Raymond, Works Director, Darwin's Ltd., Fitzwilliam Works, Sheffield.

### *As Student Members*

- BERRY, John Trevor, Student of Metallurgy, University of Birmingham.
- BROOKES, Kenneth J. A., Laboratory Assistant, British Non-Ferrous Metals Research Association, Euston Street, London, N.W.1.
- CRYSTAL, Harold, Student of Metallurgy, College of Technology, Manchester 13.
- DAVIES, Bernard Leonard, Student of Metallurgy, College of Technology, Manchester 13.
- LIDDELL, Frank Robert, Student of Metallurgy, College of Technology, Birmingham.
- MARSDEN, Brian William Hugh, Student of Metallurgy, University College, Swansea.
- MARSDEN, Terence Barclay, Student of Metallurgy, University College, Swansea.
- MORRIS, Kenneth Arthur, Metallurgical Apprentice, Stewarts and Lloyds, Ltd., Bilston, Staffordshire.
- PRESTT, John Stewart, Student of Metallurgy, College of Technology, Manchester 13.
- SIMPSON, Rex, Student of Metallurgy, University of Manchester, Manchester 13.

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## PERSONALITIES

RANDOLPHE WILLIAM DIAMOND, B.A.Sc., LL.D., D.Sc.  
(Institute of Metals (Platinum) Medallist 1951)

Mr. R. W. Diamond, to whom the Institute of Metals (Platinum) Medal for 1951 has been awarded for his outstanding services to the non-ferrous metal industries, is Vice-President and General Manager of The Consolidated Mining and Smelting Company of Canada, Ltd., Trail, B.C., the largest combined lead- and zinc-producing Company in the world.

Randolph William Diamond was born in Campbellford, Ont., in 1891, and was educated at Campbellford public and high schools and at the University of Toronto, graduating in mining and metallurgy with B.A.Sc. (Honours) in 1913. Immediately after graduation, he joined the staff of the Anaconda Copper Mining Company at Anaconda, Mont., and in May 1914 was assigned to a study of the flotation possibilities of Anaconda ores. Mr. Diamond was in charge of flotation research and development work for "Anaconda" from 1914 to early 1917. The introduction of

## NEWS AND ANNOUNCEMENTS

flotation in Anaconda milling operations during this period resulted in great increases in the copper and zinc production of that Company during the First World War.

On a short assignment to the Ohio Copper Company of Utah in the spring of 1917, Mr. Diamond developed a flotation treatment for an oxidized copper ore at Lark, Utah, and installed and started a flotation plant there.

He was engaged by The Consolidated Mining and Smelting Company of Canada, Ltd., in June 1917 to initiate and supervise experimental flotation work on the complex lead-zinc-iron ore of the Sullivan mine at Kimberley, B.C. He and his associates met with some success in early test-mill operations, using various processes which resulted in increased lead and zinc output by the Company during the late years of the First World War. They were finally successful in solving the differential-flotation problem in 1919 and in establishing a large and efficient flotation operation in a temporary mill at Trail early in 1920. High-grade lead concentrates, high-grade zinc concentrates, and a high-iron tailing were produced, with high lead and high zinc recoveries in the respective concentrates. It is believed that this was the first successful large-scale differential-flotation operation on ore of this nature anywhere. The design and construction of a 3000-ton mill at Kimberley followed immediately, and it went into operation in August 1923. The successful conclusion of this differential-flotation work proved to be not only the key to the treatment of the ore of the great Sullivan mine, but also to the future growth of The Consolidated Mining and Smelting Company. Mr. Diamond was Superintendent of Concentration from 1917 to 1929.

He spent the winter of 1929-30 in Europe studying nitrogen fixation and chemical fertilizer production methods. On his return to Canada, he co-operated in the design and construction, and was responsible on completion for the operation, of the huge plant built at Trail for the production of chemicals and chemical fertilizers. He became General Superintendent of the Concentration and Chemical and Fertilizer Departments in 1929. He was made Assistant General Superintendent of all Trail operations in 1936, and then Assistant General Manager, and acting head of the Mines Department in 1939. On 1 January 1945 he was appointed to his present position of Vice-President and General Manager.



## NEWS AND ANNOUNCEMENTS

He was elected a Director of his Company in December of that year. In 1946 he was elected a Director of the West Kootenay Power and Light Co., Ltd., and was appointed President of that Company in 1947.

In recognition of his work on the differential flotation of the Sullivan ore and in the chemical and fertilizer undertakings of The Consolidated Mining and Smelting Company, Mr. Diamond received the McCharles Medal and Award from the University of Toronto in 1934. In 1935, the Engineering Institute of Canada awarded him the Leonard Medal, while in 1948 he was chosen as the first recipient of the Selwyn G. Blaylock Medal "for distinguished service to Canada through exceptional achievement in the field of Metallurgy, and for his contributions to the eminent position of The Consolidated Mining and Smelting Company of Canada, Ltd." He was awarded the Julian C. Smith medal of the Engineering Institute of Canada, for 1948, "for achievement in the development of Canada". The honorary degree of Doctor of Laws was conferred upon him by Queen's University, 1948, and the honorary degree of Doctor of Science by the University of British Columbia in 1950.

He is a member of the Institution of Mining and Metallurgy (London), the Canadian Institute of Mining and Metallurgy, of which he was President in 1948-49, the American Institute of Mining and Metallurgical Engineers, the Australasian Institute of Mining and Metallurgy, the Engineering Institute of Canada, and the Association of Professional Engineers of the Province of British Columbia. He is the author of a number of technical papers, and of papers dealing with the broader aspects of industry.

Mr. Diamond has always taken an active interest in public affairs and has been a leader of various organizations in his own community, at Trail. He holds important offices in many provincial and national organizations. He is an Honorary Life Member of the Canadian Legion and an Officer Brother in the Order of St. John of Jerusalem. He was appointed Honorary Colonel, 24 H.A.A. Regiment, Royal Canadian Artillery, Reserve Force, in 1950.

### ERRATUM

In the News Section of the monthly *Journal* for February, 1951, p. 53, last line of the reference to the Institute of Metals (Platinum) Medal, for "copper and lead producer" read "lead and zinc producer."

### RATES OF SUBSCRIPTION TO THE INSTITUTE

The rates of subscription to the Institute of Metals are given below, with, in parentheses, the reduced rates of subscription applicable to members of the Iron and Steel Institute or the Institution of Metallurgists. There is no entrance fee. Particulars of membership may be obtained from the Secretary, 4 Grosvenor Gardens, London, S.W.1.

Ordinary Members : £4 4s. (£3 13s. 6d.) p.a.

Junior Members : £2 15s. (£2 10s.) p.a.

Student Members : £1 15s. (£1 11s.) p.a.

## NEWS AND ANNOUNCEMENTS

### PERSONAL NOTES

DR. W. E. ALKINS has been appointed a Director of Thomas Bolton and Sons, Ltd.

PROFESSOR R. M. BRICK, Director of the Department of Metallurgical Engineering, University of Pennsylvania, has been elected Chairman of the Institute of Metals Division of the American Institute of Mining and Metallurgical Engineers for 1951.

MR. L. M. CLAREBROUGH, who is a Research Officer of the Division of Tribophysics of the Commonwealth Scientific and Industrial Research Organization, Melbourne, intends to leave Australia in the middle of this year in order to study for a time in the Metallurgy Department at Birmingham University.

DR. S. F. DOREY has been elected President of the Institution of Marine Engineers. He has just completed a term as President of the Institution of Mechanical Engineers.

MR. R. GANGULI has recently been appointed Scientific Assistant (Metallurgy) for research on gases in steel at Bengal Engineering College, P.O. Botanical Gardens, Calcutta, under the Council of Scientific and Industrial Research, Government of India.

MR. G. J. G. GRIFFITHS has been appointed Assistant to the Works Manager of Enthoven-Fry, Ltd., Germiston, South Africa. He was previously with H. J. Enthoven and Sons, Ltd., Rotherhithe.

PROFESSOR D. HANSON visited Australia early this year and while in Sydney he addressed a joint meeting of the Institution of Engineers, Australia, the Australian Institute of Metals (Sydney Branch), and the Australasian Institute of Mining and Metallurgy on "Some Problems of Higher Technological Education". On 1 February he addressed a similar joint meeting in Melbourne on "Some Effects of Very High Temperatures on Steel".

MR. M. R. HINCHCLIFFE has left the employ of G. and J. Weir, Ltd., in order to undertake private consulting work.

DR. R. L. KAMM has resigned from the position of Senior Lecturer in Physical Metallurgy at Melbourne University.

PROFESSOR R. F. MEHL, one of the Honorary Corresponding Members to the Council for the United States, has been appointed Chairman of the newly established Metallurgical Advisory Board of the U.S. National Research Council.

DR. P. D. MERICA, Executive Vice-President and a Director of the International Nickel Company of Canada, Ltd., has been elected a member of the Executive Committee and of the Advisory Committee of the Company.

MR. A. G. METCALFE has taken a post with the Deloro Smelting and Refining Company, Deloro, Ont.

DR. A. J. W. MOORE has left the Division of Tribophysics of the Commonwealth Scientific and Industrial Research Organization, Melbourne, in order to undertake further work with Dr. F. P. Bowden at Cambridge.

MR. G. C. E. OLDS has been elected a graduate of the Institution of Mechanical Engineers.

## NEWS AND ANNOUNCEMENTS

MR. W. M. PEIRCE, Assistant to the General Manager of the Technical Department, New Jersey Zinc Company, has been elected President of the American Institute of Mining and Metallurgical Engineers for 1951.

MR. G. B. O'MALLEY has been appointed to the Advisory Council of the Commonwealth Scientific and Industrial Research Organization, Australia.

DR. L. B. PFEIL, Director of The Mond Nickel Co., Ltd., and Head of the Company's Development and Research Department, has been elected a Fellow of the Royal Society.

MR. R. L. PRAIN, Chairman and Managing Director of Roan Antelope Copper Mines, Ltd., has been appointed to the Board of Directors of the International Nickel Company of Canada, Ltd.

DR. E. C. ROLLASON, Delegate Director and Research Manager, Murex Welding Processes, Ltd., has been appointed Professor of Metallurgy in the University of Liverpool. He relinquishes his present post on 28 September.

MR. R. S. RUSSELL has been re-elected President of the Melbourne Branch of the Australian Institute of Metals.

MR. P. W. SELIGMAN has been elected a Member of Council of the Stainless Steel Fabricators' Association of Great Britain.

MR. G. D. SHOWELL has left the Northern Aluminium Co., Ltd., Rogerstone, and is now Managing Director of Edwin Showell and Sons, Ltd., Birmingham, brassfounders.

MR. N. S. SPENCE has been appointed Sales Manager of Dominion Magnesium, Ltd., Toronto. He was previously Director of Technical Service and Development to the Company.

PROFESSOR E. C. R. SPOONER has been elected President of the Adelaide Branch of the Australian Institute of Metals for 1951.

MR. H. S. TASKER has resigned from the Chairmanship of Goodlass Wall and Lead Industries, Ltd., but remains a Director.

DR. J. F. THOMPSON has been appointed Chairman of the Board of Directors of the International Nickel Company of Canada, Ltd., in succession to the late Mr. R. C. Stanley. He will retain the office of President of the Company which he has held since February 1949.

MR. D. R. WOOD has been appointed Leader of the Melting and Casting Section of the Development and Research Department of The Mond Nickel Co., Ltd., Birmingham.

PROFESSOR H. K. WORNER has been elected to the Federal Council of the Australian Institute of Metals, as representative of the Melbourne Branch.

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*Note :* Will members (in addition to informing the Institute's administrative department of changes of address, occupation, &c.) kindly notify the Editor, *separately*, of all changes of occupation, appointments, awards of honours and degrees, &c., as these matters interest their fellow members.

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## NEWS AND ANNOUNCEMENTS

### JOINT ACTIVITIES

#### MOND NICKEL FELLOWSHIPS 1950

MR. F. R. H. ALLON (John I. Thornycroft and Co., Ltd.), to whom the award of a Fellowship for 1950 has already been announced, is to study the methods of moulding, steel making, casting, heat-treatment, and testing of carbon and alloy steel castings in the United States and Canada.

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### OTHER NEWS

#### INSTITUTE OF BRITISH FOUNDRYMEN, ANNUAL CONFERENCE

The Annual Conference of the Institute of British Foundrymen will be held this year in Newcastle-upon-Tyne from 12 to 15 June. The President-Designate, Mr. Colin Gresty, will be inducted into the Chair on the morning of Wednesday, 13 June, and will deliver his Presidential Address. Immediately afterwards Dr. R. W. Bailey will deliver the Edward Williams Lecture on "The Properties of Materials and the Engineering Uses of Cast Iron". Wednesday afternoon and Thursday will be devoted to the discussion of papers, and on Friday, 15 June, a number of visits to works in the Newcastle area have been arranged.

#### SOCIETY OF CHEMICAL INDUSTRY: CORROSION GROUP

A Corrosion Group is being formed within the Society of Chemical Industry and will hold its inaugural meeting at the Royal Institution, Albemarle Street, London, W.1, at 6.30 p.m. on Thursday, 17 May, when an address will be given by Dr. U. R. Evans, to which all interested in this field are invited.

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### APPOINTMENTS VACANT

**TECHNICAL ASSISTANT** urgently required for Metallurgical Research Laboratory (Magnesium Alloys) in the Manchester District. Salary according to experience and qualifications. Candidates should preferably hold A.M.C.T., L.I.M., Higher National Certificate, City and Guilds in Metallurgy, or Inter. B.Sc. Industrial experience would be useful. Applications to Secretary, Magnesium Elektron Ltd., Clifton Junction, Manchester.

**YOUNG METALLURGIST** with degree and some experience of metallography urgently required for research work on light alloys. Position calls for initiative and ability. Apply, stating age, qualifications, and experience to Secretary, Magnesium Elektron Ltd., Clifton Junction, Manchester.

#### UNIVERSITY OF BIRMINGHAM

*Department of Industrial Metallurgy*

Applications are invited for the following appointments:

I. JOSEPH LUCAS FELLOWSHIP for research in the field of electrometallurgy. Salary £600-£850 per annum. Candidates should have appropriate qualifications and experience in metallurgy, physics, or chemistry. Applications to be made before 31 May 1951.

II. RESEARCH ASSISTANTS for investigations in the field of electrometallurgy. Salary range £260-£450 per annum, depending on experience and qualifications. Candidates should possess a degree in metallurgy, physics, or chemistry. Applications to be made before 31 May 1951.

All applications to be addressed to the Secretary, The University, Edmund Street, Birmingham, 3.

# **THE SOLIDIFICATION OF CASTINGS**

... by R. W. Ruddle

This survey of the literature on the solidification of castings and methods of controlling solidification covers both ferrous and non-ferrous metals and alloys. It is divided into two main sections. The first deals, in a general way, with the work that has been done towards the empirical application of scientific principles to the production of castings and ingots; in this section the concept of "directional solidification" is discussed and the various means available to attain this end are considered. The second part of the book is concerned with the more fundamental study of the solidification rates of castings and ingots. In an Appendix, a critical survey is given of the available data on the thermal properties of metals and mould materials.

**A Book for the Practical Foundryman and for the Research Worker**

Cloth. 8vo. 116 pages. 46 figures. 10s. 6d. or \$2.00 (5s. 3d. or \$1.00 to members), post free.

**THE INSTITUTE OF METALS**  
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## **NON-FERROUS METAL MELTING AND CASTING OF INGOTS FOR WORKING**

This symposium on metallurgical aspects of the subject consists of the following six papers by recognized authorities and a full report of an important discussion held at a meeting attended by nearly 400 metallurgists. The papers are "Melting and Casting of Non-Ferrous Metals", by G. L. Bailey and W. A. Baker; "The Production of Refined-Copper Shapes", by R. H. Waddington; "Melting and Casting Aluminium Bronze Ingots for Subsequent Working", by A. J. Murphy and G. T. Callis; "The Application of Flux Degassing to Commercially Cast Phosphor-Bronze", by N. I. Bond-Williams; "The Melting and Casting of Brass", by Maurice Cook and N. F. Fletcher; "The Melting and Casting of Nickel Silver at the Works of Henry Wiggin and Co., Ltd.", by E. J. Bradbury and P. G. Turner.

**A book for the practical metallurgist**

Cloth. 8vo. 168 pages. 50 figures. 15s. or \$2.50 (7s. 6d. or \$1.50 to members), post free.

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June 1951

# THE INSTITUTE OF METALS

President :

Professor A. J. MURPHY, M.Sc., F.I.M.

Secretary :

Lieut.-Colonel S. C. GUILLAN, T.D.

Editor :

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## INSTITUTE NEWS AND ANNOUNCEMENTS

### AUTUMN MEETING, ITALY. 15-25 SEPTEMBER 1951

As previously announced, the 1951 Autumn Meeting of the Institute will be held in Italy, by invitation of the Associazione Italiana di Metallurgia. The main meeting will open in Venice, with optional excursions to Milan and/or Florence. The Institute's meetings in Venice will be held side by side with those of the Associazione, and there will be a joint session in Milan. The Council hopes that this meeting—which will provide an excellent opportunity for European metallurgists, in particular, to meet in agreeable circumstances—will be very largely attended.

For the convenience of members, Messrs. Thos. Cook and Son, Ltd., have made special arrangements for members to travel accompanied by experienced couriers, and have reserved hotel accommodation at Venice, Milan, Bolzano, and Florence.

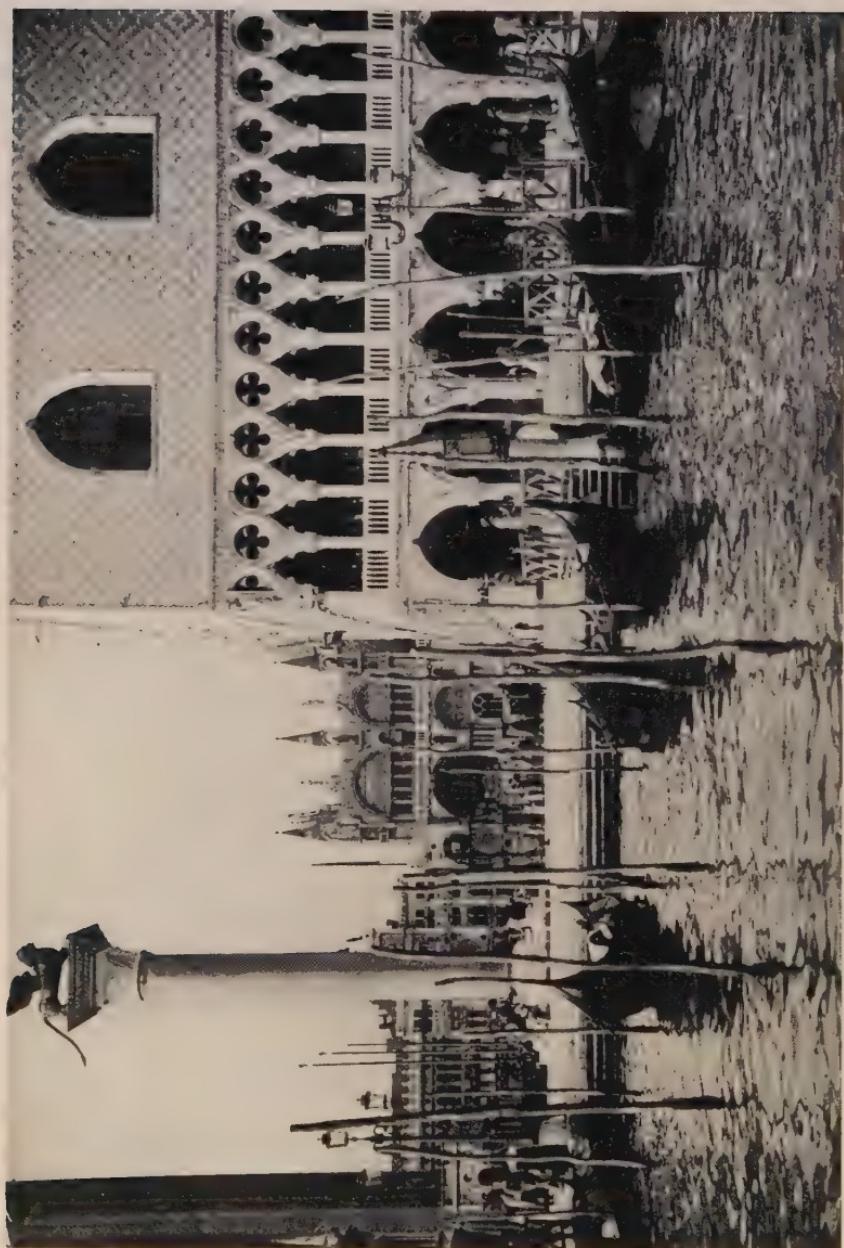
Full details of the programme, including visits to works and laboratories and social functions, have not yet been confirmed, but the programme set out below will be a sufficient guide for most members. Details of papers to be presented and discussed will be announced at an early date.

Members and ladies are advised—and, in fact, requested—to travel with the minimum amount of luggage, as there will not be room for quantities of heavy baggage on the Pullman motor coaches to Milan. To help in this connection, it has been arranged that dress clothes will *not* be required for any functions.

The Annual Autumn Lecture will be delivered in Venice by Professor Roberto Piontelli on the subject of "Electrochemistry and the Science of Metals". Professor Piontelli, who is Director of the Istituto di Electrochimica, Chimica Fisica e Metallurgica e di Metallurgia at the Politecnico di Milano, is well known for his researches in theoretical and industrial electrometallurgy, particularly in the fields of lead, zinc, and copper. He is a Vice-President of the Comité International de Thermodynamique et de Cinétique Electrochimique.

By special arrangement between the Councils of the Iron and Steel Institute and the Institute of Metals, and with the approval of the Councils of the Associazione Italiana di Metallurgia and of the Technisch-wissenschaftlicher Verein "Eisenhütte Oester-

NEWS AND ANNOUNCEMENTS



A view towards St. Mark's Square, with part of the Doge's Palace, Venice, where the meetings of the Institute and of the Italian Association will be officially opened by the Mayor of Venice on 16 September.

## NEWS AND ANNOUNCEMENTS

reich" : (1) the Iron and Steel Institute will welcome members of the Institute of Metals at its Special Meeting in Austria from 5 to 18 September on the same basis as its own members, and (2) members of the Iron and Steel Institute and their ladies will similarly be welcomed at the Italian meeting of the Institute of Metals. Brief particulars of the Iron and Steel Institute meeting were recently sent to all members of the Institute of Metals, and those who required full particulars of the meeting in Austria were requested to state so on the Reply Form which was circulated.

### Executive Committee

The following constitute the Executive Committee responsible for organizing the meeting :

#### *Chairman :*

PROFESSOR CARLO PANSERI, Direttore, Istituto Sperimentale Metalli Leggeri, Novara.

#### *Members :*

ING. GARLATTI, Società Ilva, Porto Marghera (Venezia).

PROFESSOR IZZO, Assessore al Turismo del Comune di Venezia.

DR. PIERO LECIS, Direttore, Stabilimento I.N.A. (Industria Nazionale Alluminio) di Porto Marghera (Venice).

ING. GIUSEPPE MASOCH, Direttore dello Stabilimento di Porto Marghera della Società Monteveccchio.

DR. LENO MATTEOLI, V.-Direttore dell'Istituto Scientifico Tecnico Ernesto Breda, Milan (*Honorary Corresponding Member to the Council for Italy*).

DR. MARIO SIGNORA, Direttore del Laboratorio Ricerche e Controlli della Società Acciaierie e Ferriere Lombarde Falck, Milan.

#### *Honorary Secretaries :*

Venice : DR. TIRELLI, Società I.N.A. and DR. PIANA, Società Ilva.

Florence : DR. PAOLO LOMBARDI, Società Metallurgica Italiana.

Milan : DR. G. LO PINTO, Associazione Italiana di Metallurgia.

### Programme

#### *Friday, 14 September*

2 p.m. Main party leaves London by train, comprising four Groups, as detailed below :

*Group 1.* London-Venice-London.

*Group 2.* London-Venice-Milan (incl. via Bolzano)-London.

*Group 3.* London-Venice-Florence-London.

*Group 4.* London-Venice-Milan (incl. via Bolzano)-Florence-London.

#### *Saturday, 15 September*

6.15 p.m. Main party arrives at Venice.

11.25 p.m. Iron and Steel Institute members arrive at Venice from Austria.

NEWS AND ANNOUNCEMENTS



Doge's Palace, Venice, from St. Mark's.



Grand Canal, Venice.

## NEWS AND ANNOUNCEMENTS

### Sunday, 16 September

- All day. Registration of members.
- Morning. Official opening of the meetings of the Institute of Metals and Associazione Italiana di Metallurgia, by the Mayor of Venice, at the Doge's Palace.
- 3 p.m. to 7 p.m. Visit to Murano and Torcello (islands in the Lagoon) by motor boat.

### Monday, 17 September

- Morning. Scientific and technical session.
- Ladies' visit, accompanied by guide, to the Basilica of S. Marco and the Palazzo Ducale (Doge's Palace).
- Afternoon. Visits to works, &c. (see below) or  
Visit, accompanied by guide, to the Palazzo Rezzonico.
- Evening. Autumn Lecture, by Professor R. Piontello on "Electro-chemistry and the Science of Metals" (to which members of the Associazione Italiana di Metallurgia are specially invited).

### Tuesday, 18 September

- Morning. Scientific and technical session.
- Ladies' visit, accompanied by guide, to the school of S. Rocco and the Chiesa di S. Maria Gloriosa dei Frari (one of the most famous churches in Venice).
- Afternoon. Visits to works, &c. (see below) or  
Visit, accompanied by guide, to the Chiesa della Salute and the Galleria dell' Academia di Belle Arti.

### Wednesday, 19 September

- 9 a.m. (a) Visits, accompanied by guide, to the churches of SS. Giovanni e Paolo and S. Maria dei Miracoli.  
(b) Visit, accompanied by guide, to the Basilica of S. Marco and the Palazzo Ducale (Doge's Palace).
- 12.05 p.m. Group 1. Members and ladies leave Venice by train for London (unaccompanied), arriving at London at 4.5 p.m. on Thursday, 20 September.
- Afternoon (early). Groups 2 and 4. Members and ladies leave Venice by road for:  
(a) Milan, taking tea at Gardone or Sirmione (Lake Garda), accompanied by courier.  
*or*  
(b) Milan, via Bolzano. Route Feltre (visit to the works of Metallurgica Feltrina—aluminium and chromium alloys), Belluno, Cortina d'Ampezzo, Passo Falsarego, Passo Sella, Bolzano. The night will be spent at Bolzano, where a visit will be paid to the works of Industria Nazionale Alluminio (the most up to date in Italy for the electrolytic production of aluminium), and thence, via Lake Garda, to Milan.
- Group 3. Members and ladies leave by train for Florence, accompanied by courier.

## NEWS AND ANNOUNCEMENTS

### Thursday, 20 September

- Morning. *Groups 2(a) and 4(a).* Joint session in Milan, with the Associazione Italiana di Metallurgia on "Metals in the Field of Art".  
*Groups 2(b) and 4(b).* On the Venice-Bolzano-Milan tour, arriving in Milan in the late afternoon.  
Afternoon. *Groups 2(a) and 4(a).* Visits to the 9th Exhibition of Decorative Art and to other places of interest in Milan, or works visits.  
Evening. *Groups 2 (a) and (b) and Groups 4 (a) and (b).* Banquet (lounge suits) jointly with members of the Associazione Italiana di Metallurgia.  
All day. *Group 3.* In Florence.

### Friday, 21 September

- All day. *Groups 2 and 4.* Visit to the Istituto Sperimentale Metalli Leggeri, Novara; lunch at Stresa (where members will be joined by the ladies), and visit to Lake Maggiore by steamer.  
*or, if preferred,*  
Works visits in the Milan area.  
Evening. Free in Milan.  
All day. *Group 3.* In Florence.

### Saturday, 22 September

- Morning. *Groups 2 and 4.* Free in Milan.  
1.30 p.m. *Group 4.* Party leaves for Florence by train, accompanied by courier (arrives Florence 5.55 p.m.).  
5.5 p.m. *Group 2.* Party leaves Milan by train for London, accompanied by courier, arriving London at 4.5 p.m. on Sunday, 23 September.  
All day. *Group 3.* In Florence.

### Sunday, 23 September

- All day. *Groups 3 and 4.* Arrangements for visits and for the entertainment of members and ladies will be published later.

### Monday, 24 September

- All day. *Groups 3 and 4.*  
*Members :* Visits to works.  
*Ladies :* Visits to places of interest in Florence.

### Tuesday, 25 September

- Morning. *Groups 3 and 4.* In Florence.  
12.17 p.m. Parties leave Florence by train for London, accompanied by courier, arriving London at 4.5 p.m. on Wednesday, 26 September.

*Note:* Members of the Iron and Steel Institute will return to London with the Groups in accordance with their desire to return from Venice, Milan, or Florence. A programme of visits will be arranged for Group 3 in Florence.

### Works Visits

Invitations have already been received for members to visit the following works and laboratories. Further works are expected to

## NEWS AND ANNOUNCEMENTS

be added to the list when agreement has been received to accept parties of visitors.

### Venice Zone

#### (a) *Non-Ferrous, etc.*

- Società Montevecchio (Lead and zinc metallurgy).  
I.N.A. Industria Nazionale Alluminio (Extraction of aluminium).  
Società Vetrocoker (Coke plant, with adjoining works for manufacture of special constructional glasses and for the production of chemicals and fertilizers).

#### (b) *Ferrous.*

- Ilva. Alti Forni e Acciaierie d'Italia, Stabilimento di Marghera (Venice) (Steelworks).  
I.N.A. Industria Nazionale Alluminio, Stabilimento di Marghera (Venice) (Ferro-alloys).  
Società Industriale "San Marco", Stabilimento di Porto Marghera (Venice) (Ferro-alloys).

### Venice/Milan Route

- I.N.A. Industria Nazionale Alluminio, Bolzano (Electrolytic manufacture of aluminium. Most up-to-date of its kind in Italy, 150 km. from Venice).

### Milan Zone

#### (a) *Non-Ferrous.*

- Istituto Scientifico Tecnico, Società Italiana Ernesto Breda, Milan.  
Istituto Sperimentale Metalli Leggeri, Novara (Light metal research).

#### (b) *Ferrous.*

- Dalmine, Milan (Steel and tube works).  
Istituto Scientifico Tecnico, Società Italiana Ernesto Breda, Milan.  
Società Italiana Ernesto Breda, Milan (Electric production of pig iron).  
Ilva. Alti Forni e Acciaierie d'Italia, Lovere.

### Turin

- Società F.I.A.T., Mirafiori works (Automobile manufacture).  
Società F.I.A.T., Ferriere Piemontesi (Steel and rolling mills).

### Florence

#### (a) *Non-Ferrous.*

- Società Metallurgica Italiana, Stabilimenti di Fornaci di Barga (Lucca) (Foundry and rolling mills for copper, brass, aluminium, and light alloys).  
Società Metallurgica Italiana, Stabilimenti di Campo Tizzoro (Copper and brass foundry and rolling mills).

#### (b) *Ferrous.*

- Ilva. Alti Forni e Acciaierie d'Italia, Impianti di Piombino e dell'Isola d'Elba (Blast furnaces and steelworks).

## NEWS AND ANNOUNCEMENTS

### Hospitality

The Executive Committee will publish, in due course, details of hospitality to be offered to members and delegates attending the meetings of the Institute of Metals and the Associazione Italiana di Metallurgia.

### Cost

*Registration Fee.*—A registration fee of £1 for each member and 10s. for ladies and other guests will be payable, in advance, by all those who take part in the officially arranged programme (excluding, of course, the scientific and technical sessions). The fee is charged to cover administrative expenses in making the arrangements.

### Visits.

(a) *Venice.* A charge of L.2500 (about 28s.) will be made to cover motor-boat trip to the islands of the Lagoon, steam-boat fares, admission to museums and art galleries, and the services of guides.

(b) *Milan.* A charge of about L.1000 (about 11s.) will be made for the transport, etc., costs of one half-day visit to places of interest.

(c) *Works Visits.* Transport charges will be about L.1000 (about 11s.) per visit, except where the costs are obviously otherwise covered (e.g., Bolzano, Novara, &c.).

*Banquet.*—The charge will be about £1 per head (payable in lire), inclusive of wine.

### Reply Form

Those who intend or hope to attend the meeting are requested, without obligation, to complete and return to the Secretary the Reply Form which accompanied the circular letter despatched on 3 May. Because of the high costs of printing and distributing such matter to the whole membership, the final detailed programme will only be sent to those who have applied to receive it.

### Official Travel Arrangements

The official travel and hotel arrangements, which are in the hands of Thos. Cook and Son, Ltd., Berkeley Street, London, W.1, are as detailed below. It is particularly hoped that, as a special train has been reserved for the purpose, members and ladies will be prepared to leave London on Friday, 14 September at 2.0 p.m.

Those who are proposing to attend the meeting are reminded to ensure that their passports are valid and not out of date (no visa is required by holders of British passports); those making arrangements with Thos. Cook and Son, Ltd., will receive particulars regarding passports, insurance, currency, &c.

There are given below the charges made by Thos. Cook and Son, Ltd., for the following services to members: services of couriers, travel (2nd class rail, 1st class steamer), road transport where indicated, portage on hand-baggage (heavy baggage will be at passengers' expense), meals and gratuities *en route*, transport to and from hotels where necessary, accommodation (incl. taxes) and full

## NEWS AND ANNOUNCEMENTS

board throughout except for dinner at Milan on 20 September (night of official banquet), lunch on 21 September (when most members are expected to take lunch at Stresa), and at Florence where—for the benefit of members who may wish either to lunch or dine out of their hotels—arrangements have been made on a demi-pension basis throughout the stay.

*Supplementary charges* are as follows :

Sleepers, 1st class, Calais–Basle, Basle–Calais, £5 9s. 5d. each direction.

Sleepers, 2nd class, Calais–Basle, Basle–Calais, £3 11s. 2d. each direction.

*Note* : To keep the cost of travel at a minimum, the sleepers on this train have been reserved to Basle only. Members who would like sleeper accommodation reserved through to Venice and for the return journey to Calais, should apply to Thos. Cook and Son, Ltd., who will endeavour to make arrangements.

1st class travel throughout, Group 1, £8 7s. 6d.; Group 2, £6 0s. od.; Group 3, £7 15s. od.; Group 4, £6 15s. od.

*Hotel code* : S.1 = Superior 1st class;  
O.1 = Ordinary 1st class;  
S.2 = Superior 2nd class.

### Group 1.—London–Venice–London

Hotels	Single, with Bath	Single	Double, with Bath	Double
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Luxe . . .	53 4 0	49 2 0	53 4 0	48 8 0
S.1 . . .	49 6 0	46 11 0	48 16 0	46 6 0
O.1 . . .	49 1 0	46 6 0	47 19 0	45 15 0
S.2 . . .	46 0 0	45 18 0	45 16 0	44 13 0

*Note* : If Group 1 exceeds 20 persons a reduction in the above rates will be possible.

### Group 2.—London–Venice–Milan–London

Hotel	Single with Bath	Single	Double, with Bath	Double
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Luxe . . .	63 6 0	56 6 0	61 19 0	55 2 0
S.1 . . .	58 4 0	53 19 0	57 11 0	53 11 0
O.1 . . .	55 2 0	51 1 0	54 0 0	50 11 0
S.2 . . .	50 14 0	48 15 0	50 9 0	48 10 0

*Note* : These prices are based on a minimum of 100 travelling together throughout. A supplement of £150 will be charged to those proceeding to Milan via Bolzano.

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### Group 3.—London—Venice—Florence—London

Hotel	Single, with Bath			Single			Double, with Bath			Double		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Luxe . . .	78	2	0	67	16	0	75	13	0	66	1	0
S.1 . . .	71	4	0	63	15	0	69	15	0	62	15	0
O.1 . . .	70	16	0	62	18	0	67	11	0	61	10	0
S.2 . . .	63	0	0	59	9	0	62	15	0	58	19	0

*Note:* These prices are based on a minimum of 15 travelling together throughout. If the minimum is exceeded, the cost may be slightly reduced.

### Group 4.—London—Venice—Milan—Florence—London

Hotel	Single, with Bath			Single			Double, with Bath			Double		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
Luxe . . .	80	16	0	70	13	0	78	4	0	68	19	0
S.1 . . .	74	10	0	67	14	0	73	2	0	66	16	0
O.1 . . .	71	0	0	64	8	0	68	16	0	63	9	0
S.2 . . .	64	5	0	61	2	0	64	0	0	60	14	0

*Note:* These prices are based on a minimum of 50 travelling together throughout. A supplement of £1 5s. od. will be charged to those proceeding to Milan via Bolzano.

### GENERAL MEETING, LONDON, 17 and 18 OCTOBER 1951

#### DISCUSSION ON METAL ECONOMICS

In connection with this special General Meeting, previously announced, it is now hoped to arrange a General Discussion on the subject of "Metal Economics".

#### ANNUAL GENERAL MEETING, LONDON, TUESDAY, WEDNESDAY, AND THURSDAY, 25, 26, and 27 MARCH 1952

The next Annual General Meeting of the Institute will be held in London on Tuesday, Wednesday, and Thursday, 25, 26, and 27 March 1952. One day of this meeting (probably Wednesday, 26 March) will be devoted to a Symposium on "Equipment for the Thermal Treatment of Non-Ferrous Metals and Alloys".

On the first two days, the meetings will be held at the Park Lane Hotel, Piccadilly, W.1, and a Luncheon is being arranged at that hotel on the first day of the meeting.

## NEWS AND ANNOUNCEMENTS

### WORLD METALLURGICAL CONGRESS, DETROIT, 15-19 OCTOBER 1951.

SIR WILLIAM GRIFFITHS, D.Sc., and SIR ARTHUR SMOUT, J.P. (Past-Presidents) will represent the Institute of Metals at this Congress, which is being organized by the American Society for Metals.

### XII<sup>TH</sup> INTERNATIONAL CONGRESS OF PURE AND APPLIED CHEMISTRY

DR. R. A. WILKINS (an Honorary Corresponding Member to the Council for the U.S.A.) will officially represent the Institute of Metals at the XII<sup>th</sup> International Congress of Pure and Applied Chemistry, which is to be held in New York from 10 to 13 September 1951. He will also represent the Institute at the 78th Anniversary Meeting of the American Chemical Society (2-7 Sept.) and the XVI<sup>th</sup> Conference of the International Union of Pure and Applied Chemistry (8-9 Sept.), which precede it.

Members requiring particulars of these meetings should apply to Dr. H. L. Fisher, Administrative Assistant, XII<sup>th</sup> International Congress of Pure and Applied Chemistry, 2101 Constitution Avenue, Washington 25, D.C., U.S.A.

### "METALLURGICAL ABSTRACTS" VOLUMES WANTED

The Institute will pay £1 each, up to a limited number, for bound copies, in good condition, of *Metallurgical Abstracts*, 1942, vol. 9, and 1943, vol. 10. Offers of copies for sale should be addressed to the Secretary.

### PAPER BY MCQUILLAN : CORRIGENDUM

In the paper "The Application of Hydrogen Equilibrium-Pressure Measurements to the Investigation of Titanium Alloy Systems", by Dr. A. D. McQuillan, which appeared in the April 1951 issue of the *Journal*, the equation on p. 82 should read :

$$\left( \frac{\partial \log p}{\partial \frac{1}{T}} \right)_c = \frac{Q}{R}$$

### RATES OF SUBSCRIPTION TO THE INSTITUTE

The rates of subscription to the Institute of Metals are given below, with, in parentheses, the reduced rates of subscription applicable to members of the Iron and Steel Institute or the Institution of Metallurgists. There is no entrance fee. Particulars of membership may be obtained from the Secretary, 4 Grosvenor Gardens, London, S.W.1.

Ordinary Members : £4 4s. (£3 13s. 6d.) p.a.

Junior Members : £2 15s. (£2 10s.) p.a.

Student Members : £1 15s. (£1 11s.) p.a.

## NEWS AND ANNOUNCEMENTS

### APPEAL TO INDUSTRY FOR REGULAR FINANCIAL SUPPORT OF THE INSTITUTE'S WORK

#### THIRD LIST OF CONTRIBUTIONS RECEIVED

Up to the time of going to press with this issue of the *Journal* (4 May), the following additional subscriptions and donations have been received in response to the Council's appeal to industry for financial support of the Institute's work. The first two lists were published in the News and Announcements section of the monthly issues of the *Journal* for March 1951 (pp. 61-64) and May 1951 (pp. 84-85).

In the letter of appeal, the Council expressed the hope that the companies engaged in the metallurgical industry—both large and small—as well as those in the "user" industries which benefit from its work, will not only respond generously to this appeal, but will encourage as many as possible of their technical staffs to join the Institute and take an active part in its affairs.

Members whose companies have not yet responded to the appeal are requested to apply to the Secretary for copies of the letter of appeal and associated documents.

The letter of appeal has been sent only to companies whose works or headquarters are located in Great Britain, but the Council will, of course, welcome regular subscriptions from private individuals and from any companies, located outside the British Isles, which value the Institute's work and would like to support it. A generous response to the appeal has already been acknowledged from certain companies in the United States, and a contribution from Switzerland is gratefully acknowledged below.

#### Annual Subscriptions to be Renewed (without obligation), But Not Under Covenant

	£ s. d.
Tube Investments, Ltd. (including Reynolds Light Alloys, Ltd.; Reynolds Rolling Mills, Ltd.; South Wales Aluminium Co., Ltd.; and T.I. Aluminium, Ltd.) . . . . .	200 0 0*

\* = received as an "annual subscription".

#### Donations (Some of which May Be Renewed for Unspecified Amounts)

	£ s. d.
General Motors, Ltd. (including AC Sphinx Sparking Plug Co., Ltd., Delco-Remy-Hyatt, Ltd., and Frigidaire, Ltd.) . . . . .	200 0 0
Société Anonyme pour l'Industrie de l'Aluminium (Switzerland) . . . . .	20 0 0
Clifford (Charles) and Son, Ltd. . . . .	10 10 0

## NEWS AND ANNOUNCEMENTS

### ELECTION OF ORDINARY MEMBERS AND STUDENT MEMBERS

The following 17 Ordinary Members and 7 Student Members were elected on 16 April 1951:

#### *As Ordinary Members*

- COLEMAN, Geoffrey, Manager, British United Shoe Machinery Company, Ltd., IVI Works, Hildyard Road, Leicester.
- DE MERRE, Marcel, O.B.E., Administrateur-Directeur Général, Société Général Métallurgique de Hoboken, Anvers, Belgium.
- DUNLOP, Samuel Hamilton, General Manager, Central Marine Engine Works, West Hartlepool.
- GILLESPIE, William George, Deputy Managing Director, West Rand Engineering Works (Pty.), Ltd., Little Birmingham, Krugersdorp, Transvaal, South Africa.
- HAMER, Robert Dennis, B.Sc., Dipl.Ing., Vice-President and Director, Aluminium Laboratories, Ltd., Banbury, Oxon.
- HAYWARD, Eric, Dane Street House, Chilham, near Canterbury, Kent.
- HEATON, Roger Noel, Secretary, British Non-Ferrous Metals Federation, 132 Hagley Road, Birmingham 16.
- KLEMENT, John F., B.S., M.E., Chief Metallurgist, Ampco Metal, Inc., 1745 S. 38th Street, Milwaukee 15, Wis., U.S.A.
- LAWLEY, Bernard, Director, Thomas Lawley, Ltd., 109 Unett Street, Birmingham.
- LAWLEY, Gerald, Director, Jones and Rooke (1948), Ltd., 86-92 Northwood Street, Birmingham 3.
- McCONNELL, John Lawson, M.C., Chairman, Goodlass Wall and Lead Industries, Ltd., 14 Finsbury Circus, London, E.C.2.
- MACWATTERS, Lieut.-Colonel Gerald, O.B.E., T.D., Manager, Capper Pass and Son, Ltd., Bedminster Smelting Works, Bristol.
- PRICHARD, Evan Wynne, B.Sc., Technical Assistant, Department of Atomic Energy, Ministry of Supply, Springfields, near Salwick, Preston, Lancs.
- REYNOLDS, Thomas, Works Manager, Hughes-Johnson Stampings, Ltd., Langley Green, Birmingham.
- SCHENKEL, John Robert Harry, Works Metallurgist, Charles Clifford and Son, Ltd., Dogpool Mills, Birmingham.
- THEOBALD, John Richard, B.Sc., Assistant Works Manager, Mersey White Lead Co., Ltd., Sankey Bridges, Warrington, Lancs.
- WATSON, Lieut.-Colonel Nigel, Metallurgist, Oesterreichische Alpine Montangesellschaft, Leoben, Austria.

#### *As Student Members*

- ATKINS, John W., Student Metallurgical Chemist, John Dale, Ltd., London Colney, St. Albans, Herts.
- BEISHON, Ronald John, Student of Metallurgy, Battersea Polytechnic, London, S.W.11.
- BURRILL, William James, B.Sc., Student of Metallurgy, King's College, Newcastle-upon-Tyne.
- EICHEN, Erwin, B.Met.E., Student of Metallurgy, Ohio State University, Columbus 10, O., U.S.A.

## NEWS AND ANNOUNCEMENTS

- ISCAR, John Ernest, Assistant Metallurgist, Ransome and Rapier, Ltd., Waterside Works, Ipswich.  
WHITEHEAD, Trevor Joseph, Student of Metallurgy, College of Technology, Manchester 13.  
WINDLE, John Michael, Student-Metallurgist, Rolls Royce, Ltd., Bankfield, Barnoldswick, via Colne, Lancs.

The following 8 Ordinary Members, 1 Junior Member, and 7 Student Members were elected on 25 April 1951 :

### *As Ordinary Members*

- BRONNIMANN, Mark, B.S., Metallurgist, Cerro de Pasco Copper Corporation, La Oroya, Peru.  
COOKSON, Roland Antony, O.B.E., Director, Associated Lead Manufacturers, Ltd., Crescent House, Newcastle-upon-Tyne 1.  
DUPONT, Max, Manager, Centre de Documentation Sidérurgique, 6 Rue de Lota, Paris 16e, France.  
HARDY, John, A.Met., A.I.M., Regional Works Metallurgist, Railway Executive, Western Region, Mechanical and Electrical Engineer's Department, Swindon, Wiltshire.  
HENSHKER, Erhard Rudolf, Chief Engineer, Loewy Engineering Company, Ltd., Branksome Grange, St. Aldhelm's Road, Bournemouth.  
JONAH, David Alonzo, Sc.M., Librarian, Brown University Library, Providence 12, R.I., U.S.A.  
KIRKPATRICK, L. H., A.M., Librarian, University of Utah Library, Salt Lake City, Utah, U.S.A.  
SULLY, William John, Director and Works Manager, Sterling Metals, Ltd., Gypsy Lane Works, Nuneaton.

### *As Junior Member*

- THOMPSON, Ronald Alexander, Technical Assistant, Imperial Chemical Industries, Ltd., Metals Division, Landore, Swansea.

### *As Student Members*

- DAVIES, David Howell, Student, Metallurgy Department, University College, Swansea.  
DUNCAN, John Alexander, Student of Metallurgy, Battersea Polytechnic, London, S.W.11.  
FRICKER, Dennis John, Research Laboratories, The British Aluminium Co., Ltd., Chalfont Park, Gerrards Cross, Buckinghamshire.  
HALL, Edward George, Technical Assistant, Research Laboratories, The British Aluminium Co., Ltd., Chalfont Park, Gerrards Cross, Buckinghamshire.  
HYAM, Elmer Donald, B.A., Research Student, Department of Metallurgy, University of Cambridge.  
SHAMI, Wahid-Uz-Zaman, B.Sc., Assistant Section Officer, A/46, Metallurgical Department, Royal Arsenal, Woolwich, S.E.18.  
TOOR, A. U. K., M.Sc., A.S.O. Trainee, A/46, Royal Arsenal, Woolwich, S.E.18.

## NEWS AND ANNOUNCEMENTS

### COUNCIL 1951-52

#### President :

**Murphy, Professor A. J., M.Sc., F.I.M.**, Professor of Industrial Metallurgy, University of Birmingham.

#### Past-Presidents :

**Gueterbock, Colonel Sir Paul, K.C.B., D.S.O., M.C., T.D., D.L., J.P., M.A., M.I.M.M., F.I.M., A.D.C.**; Managing Director, Capper Pass and Son, Ltd., Bristol; Chairman, Victor G. Stevens, Ltd., Gateshead; Chairman, Geo. Pizey and Son, Ltd., London.

**Smout, Sir Arthur, J.P., F.R.I.C., M.I.M.M., F.I.M.**; Director, Imperial Chemical Industries, Ltd., London; Director, Murex, Ltd., Rainham; Director, Murex Welding Processes, Ltd.; Director, Magnesium Elektron, Ltd., Manchester; Director, Pyrotenax, Ltd., Hebburn-on-Tyne.

**Tasker, H. S., B.A.**; Director, Goodlass Wall and Lead Industries, Ltd., London; Chairman, British Titan Products Co., Ltd., York.

#### Vice-Presidents :

**Ball, Major C. J. P., D.S.O., M.C., F.R.Ae.S.**; Director, The Distillers Co., Ltd.; Chairman, British Resin Products, Ltd.; Chairman and Managing Director, Magnesium Elektron, Ltd.; Managing Director, F. A. Hughes and Co., Ltd.; Director, Sterling Metals, Ltd., Coventry; Director, Basic Magnesium, Inc. (U.S.A.).

**Graham, A. B.**; Manager (Glasgow Works), Henry Wiggin and Co., Ltd.

**Hunter, P. V., C.B.E., Hon.M.I.E.E.**; Joint Deputy Chairman, British Insulated Callender's Cables, Ltd., London; Chairman, B.I.C.C. Construction Co., Ltd.; Chairman, British Dielectric Research, Ltd.; Chairman, British Telecommunications Research, Ltd.; Chairman, Thos. Bolton and Sons, Ltd.; Chairman, Painter Bros., Ltd.; Chairman, Rotunda, Ltd.; Chairman, Telegraph Condenser Co., Ltd.; Chairman, United Insulator Co., Ltd.; Director, Connollys (Blackley), Ltd.; Director, Craigpark Electric Cable Co., Ltd.; Director, Electric Panels, Ltd.; Director, W. T. Glover and Co., Ltd.; Director, Metropolitan Electric Cable and Construction Co., Ltd.

**O'Neill, Professor H., D.Sc., M.Met., F.I.M.**; Professor of Metallurgy, University College of Swansea.

**Smithells, C. J., M.C., D.Sc., F.I.M.**; Director of Research, The British Aluminium Co., Ltd., Gerrards Cross. (*Senior Vice-President*).

**Thompson, Professor F. C., D.Met., M.Sc., F.I.M.**; Professor of Metallurgy, University of Manchester.

#### Honorary Treasurer :

**Newman, W. A. C., O.B.E., B.Sc., A.R.S.M., A.R.C.S., D.I.C., F.R.I.C., M.I.M.M., F.I.M.**; Chemist and Assayer, The Royal Mint, London.

## NEWS AND ANNOUNCEMENTS

### Ordinary Members of Council :

**Baer, Alfred M.**; Chairman, H. J. Enthoven and Sons, Ltd.; Director, National Alloys Ltd.; Director, Broken Hill Secretariat, Ltd.; Director, Fricker's Metal and Chemical Co., Ltd.; Director, Imperial Smelting Corporation, Ltd.; Director, The Zinc Corporation, Ltd.; Director, New Broken Hill Consolidated, Ltd.; Director, National Smelting Co., Ltd.

**Bailey, G. L.**, M.Sc., F.I.M.; Director, British Non-Ferrous Metals Research Association, London.

**Bolton, E. A.**, M.Sc., F.I.M.; Factory Manager, Elliott Works, Imperial Chemical Industries, Ltd., Metals Division, Birmingham.

**Campbell, D. F.**, M.A., A.R.S.M., M.I.E.E., F.I.M.; Chairman, Electric Furnace Co., Ltd., Weybridge; Chairman, Electro-Chemical Engineering Co., Ltd., Weybridge; Chairman, Davy and United Engineering Co., Ltd., Sheffield; Chairman, Metallurgical Equipment Export Co., Ltd., London and Sheffield; Chairman, Campbell and Gifford, Ltd., Weybridge.

**Clarke, K. W.**, F.I.M.; Chief Metallurgist, The de Havilland Aircraft Co., Ltd., Edgware.

**Davy, C. H.**, M.I.Mech.E.; Director and Chief Research and Development Engineer, Babcock and Wilcox, Ltd., London; Chairman, The Calorizing Corporation of Great Britain, Ltd.; Director, Stirling Boiler Co., Ltd.

**Herbert, T. M.**, M.A., M.I.Mech.E.; Director of Research, Railway Executive, London.

**Hignett, H. W. G.**, B.Sc., F.R.I.C., F.I.M.; Superintendent, Development and Research Department Laboratory, The Mond Nickel Co., Ltd., Birmingham.

**Jones, E. H.**, A.R.I.C., M.I.M.M., F.I.M.; Director and General Manager (Bristol), Capper Pass and Son, Ltd., Bristol.

**Pfeil, L. B.**, O.B.E., D.Sc., A.R.S.M., F.R.S., F.I.M.; Director, The Mond Nickel Co., Ltd.; Director, Henry Wiggin and Co., Ltd.; Manager, Development and Research Department, The Mond Nickel Co., Ltd.

**Powell, A. R.**, F.R.I.C., F.I.M.; Research Manager, Johnson Matthey and Co., Ltd., Wembley.

**Quarrell, Professor A. G.**, D.Sc., Ph.D., A.R.C.S., D.I.C., F.Inst.P., F.I.M.; Professor of Physical Metallurgy and Dean of the Faculty of Metallurgy, University of Sheffield.

**Raynor, Professor G. V.**, D.Sc., D.Phil., M.A., A.I.M.; Professor of Metal Physics, University of Birmingham.

**Smith, Christopher**, F.I.M.; Works Superintendent, James Booth and Co., Ltd., Birmingham.

*N.B.*—A vacancy exists on the Council owing to the death of Mr. Harry Davies (see p. 112). This will be filled at an early date and an announcement made in the *Journal* as soon as possible.

### Ex-officio : Chairmen of Local Sections

#### *Birmingham*

**Thomas, Bernard**, F.Inst.P., F.Inst.F., A.M.I.Mech.E., A.I.M.; Chairman and Managing Director, MacBee, Ltd., Bridgnorth; Proprietor, Grove Foundry Co., Bridgnorth, and Birchills Plating Co., Walsall.

## NEWS AND ANNOUNCEMENTS

### *London*

**Liddiard, E. A. G., M.A., F.I.M.**; Director, Fulmer Research Institute, Ltd., Stoke Poges, Bucks.

### *Oxford*

**Finniston, H. M., B.Sc., Ph.D., A.R.T.C.**; Chief Metallurgist, Atomic Energy Research Establishment, Harwell, Berks.

### *Scottish*

**Arnott, J., F.R.I.C., F.I.M.**, Chief Metallurgist, G. and J. Weir, Ltd., Glasgow.

### *Sheffield*

**Hallett, M. M., M.Sc.**; Chief Metallurgist, Sheepbridge Stokes Centrifugal Castings Co., Ltd., Chesterfield.

### *South Wales*

**Hontoir, E. A., B.Sc.**; Chief Chemist and Metallurgist, Rio Tinto Co., Ltd., Port Talbot, Glam.

### Representatives of Other Bodies

The following, in accordance with Article 32, represent Government departments and allied societies at Council meetings, for purposes of liaison :

#### *The Admiralty*

**Peile, Captain (E.) L. A. B., D.S.O., M.V.O., R.N.**

#### *The Institution of Metallurgists*

**Colbeck, E. W., M.A., F.I.M.**  
**Rotherham, L., M.Sc., F.I.M.**

#### *The Iron and Steel Institute*

**Mather, R., B.Met., F.I.M.**

#### *The War Office*

**Joslin, Major-General S. W., C.B.E., M.A., M.I.Mech.F.**

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## HONORARY CORRESPONDING [MEMBERS] TO THE COUNCIL

**Australia** : Professor H. K. Worner, D.Sc.

**Belgium** : H. P. A. Féron.

**Canada** : Professor B. Chalmers, Ph.D., D.Sc., and Professor G. Letendre, B.A., Ph.D.

**France** : Professor P. A. J. Chevenard and J. Matter.

**India** : N. P. Gandhi, M.A., B.Sc., A.R.S.M., D.I.C.

**Italy** : Leno Matteoli, Dott.chim.

**Netherlands** : M. Hamburger.

**South Africa** : G. H. Stanley, D.Sc., A.R.S.M., and Professor L. Taverner, A.R.S.M., D.I.C.

**Spain** : Professor J. Orland, M.Sc., M.A., Ph.D., D.D.

## NEWS AND ANNOUNCEMENTS

Sweden : Professor Carl A. F. Benedicks, Fil.Dr., Dr.Ing.e.h., Dr.Techn.h.c., and Professor Axel Hultgren.

Switzerland : Professor A. von Zeerleder, Dr.-Ing.

United States of America : Professor R. F. Mehl, Ph.D., Hon. Eng.D., Hon. Sc.D.; Professor C. S. Smith, Sc.D.; and Dr. R. A. Wilkins.

## COMMITTEES FOR 1951-52

### FINANCE AND GENERAL PURPOSES COMMITTEE

BALL, Major C. J. P. (*Chairman*).

TASKER, Mr. H. S.

BAILEY, Mr. G. L.

*Ex-officio :*

BOLTON, Mr. E. A.

President.

GRAHAM, Mr. A. B.

Senior Vice-President.

GUETERBOCK, Colonel Sir Paul.

Honorary Treasurer.

HIGNETT, Mr. H. W. G.

Chairman, Publication Committee.

SMOUT, Sir Arthur.

### LOCAL SECTIONS COMMITTEE

HIGNETT, Mr. H. W. G. (*Chairman*).

ARNOTT, J. (*Chairman, Scottish Local Section*).

CLARKE, Mr. K. W.

HAY, Mr. Matthew (*Hon. Secretary, Scottish Local Section*).

GARSIDE, Dr. J. E.

HALLETT, Mr. M. M. (*Chairman, Sheffield Local Section*).

GRAHAM, Mr. A. B.

MACDOUGALL, Mr. A. J. (*Hon. Secretary, Sheffield Local Section*).

JONES, Mr. E. H.

HONTOIR, Mr. E. A. (*Chairman, South Wales Local Section*).

KENNEDY, Dr. S. J.

SPRING, Mr. K. M. (*Hon. Secretary, South Wales Local Section*).

WALTON, Mr. J. S.

*Ex-officio :*

THOMAS, Mr. Bernard (*Birmingham Local Section*).

President.

BUCKNALL, Mr. E. H. (*Hon. Secretary, Birmingham Local Section*).

Senior Vice-President.

LIDDIARD, Mr. E. A. G. (*Chairman, London Local Section*).

Honorary Treasurer.

RHODES, Dr. E. C. (*Hon. Secretary, London Local Section*).

### MEDAL COMMITTEE

PRESIDENT (*Chairman*).

who are, or have been, Members of Council (to be selected by the President).

SENIOR VICE-PRESIDENT.

Not more than four medallists

### METAL PHYSICS COMMITTEE

QUARRELL, Prof. A. G. (*Chairman*).

OLIVER, Mr. D. A. (representing the Iron and Steel Institute and B.I.S.R.A.).

BOWDEN, Dr. F. P.

RAYNOR, Prof. G. V.

COTTERELL, Prof. A. H.

RICHARDS, Dr. T. L.

HIGNETT, Mr. H. W. G.

*Ex-officio :*

HUME-ROTHERY, Dr. W.

President.

KING, Mr. R.

Chairman, Publication Committee.

MCLEAN, Mr. D.

NABARRO, Mr. F. R. N.

## NEWS AND ANNOUNCEMENTS

### METALLURGICAL ENGINEERING COMMITTEE

SMITH, Mr. Christopher ( <i>Chairman</i> ).	SWINDELLS, Dr. N.
BAKER, Mr. W. A.	THOMAS, Mr. W. J.
BOLTON, Mr. E. A.	WALTON, Mr. J. S.
BOWMAN, Mr. W. H.	WILKINSON, Mr. R. G.
CAMPBELL, Mr. D. F.	
DAVIES, Mr. C. E.	<i>Ex-officio :</i>
MILLER, Mr. H. J.	President.
PATON, Mr. Charles.	Chairman, Publication Committee.
SINGER, Dr. A. R. E.	Publication Committee.

### NOMINATIONS COMMITTEE

PRESIDENT ( <i>Chairman</i> ).	TASKER, Mr. H. S.
SMOUT, Sir Arthur.	SENIOR VICE-PRESIDENT.

### PUBLICATION COMMITTEE

O'NEILL, Prof. H. ( <i>Chairman</i> ).	SULLY, Mr. W. J.
BAILEY, Mr. G. L.	THOMPSON, Prof. F. C.
COTTERELL, Prof. A. H.	TURNER, Mr. T. Henry.
FOX, Dr. F. A.	
GADD, Mr. E. R.	<i>Ex-officio :</i>
HIGNETT, Mr. H. W. G. ( <i>representing the Local Sections Committee</i> ).	President.
INGLIS, Dr. N. P.	Chairman, Finance and General Purposes Committee.
JENKINS, Dr. Ivor.	Honorary Treasurer.
JONES, Mr. E. H.	Chairman, Metal Physics Committee.
LIDDIARD, Mr. E. A. G.	Chairman, Metallurgical Engineering Committee.
PHILLIPS, Mr. H. W. L.	
POWELL, Mr. A. R.	

### PERSONAL NOTES

DR. C. S. BARRETT has received the first award of the Mathewson Gold Medal of the American Institute of Mining and Metallurgical Engineers, for a paper on "Faults in the Structure of Copper-Silicon Alloys" (*J. Metals*, Feb. 1950). The medal was established last year as a tribute to Dr. C. H. Mathewson, Emeritus Professor of Metallurgy and Metallography at Yale University.

MR. H. N. BASSETT (Honorary Corresponding Member to the Council for Argentina) is expected in England shortly, and will not be returning to Argentina. His address will be 340 Marlborough Rd., Swindon, Wilts.

PROFESSOR G. BORELIUS recently delivered the Annual Lecture of the Institute of Metals Division of the American Institute of Mining and Metallurgical Engineers at its Annual Meeting in St. Louis. His subject was "Kinetics of Precipitation in Supercooled Metallic Solutions".

MR. D. L. CAMPBELL has been appointed a Director of the Electric Furnace Co., Ltd.

## NEWS AND ANNOUNCEMENTS

DR. P. HERASYMENKO has resigned his post in the Research and Development Department of the United Steel Companies, Ltd., and left for the United States at the end of April.

MR. A. LOGAN has resigned his post as Chief Chemist and Metallurgist to the Light Production Co., Ltd., Slough, in order to join the Harborough Construction Co., Ltd., as Technical Manager of the Foundry Supplies Division.

SIR ANDREW McCANCE has been elected President of the Institution of Engineers and Shipbuilders in Scotland.

MR. D. C. MOORE has recently been awarded the degree of Ph.D. of Birmingham University and has taken up a post in the Research Department of Imperial Chemical Industries, Ltd., Metals Division, Birmingham.

DR. BRUCE S. OLD has been elected Vice-President of Arthur D. Little, Inc., consultants, of Boston, Mass. He has been in charge of process metallurgy for his Company since 1946.

PROFESSOR A. PORTEVIN has been awarded an honorary doctor's degree by the University of Quebec. It is the seventh occasion on which he has been so honoured by a foreign university.

MR. STANLEY ROBSON has been elected to Honorary Fellowship of the Imperial College of Science and Technology.

DR. A. J. SHALER, who is at present serving in the U.S. Office of Naval Research in London, has received the Rossiter W. Raymond Memorial Award of the American Institute of Mining and Metallurgical Engineers for the best paper published by the Institute by a member under 33. Dr. Shaler's paper was : " Seminar on the Kinetics of Sintering " (*J. Metals*, Nov. 1949).

MR. J. R. STANDRING has taken up an appointment with the Government of India in connection with the manufacture of aircraft. His address will be c/o Hindustan Aircraft, Ltd., Bangalore, India.

DR. M. TIGERSCHIÖLD, Director of Research to Jernkontoret, Stockholm, since 1936, has resigned in order to take up a post as adviser on metallurgical questions to the Grängesberg—Luossavaara—Kiirunavaara Company.

### MARRIAGE

MR. E. R. PERRY was married to Miss J. L. Suddards at St. Peter's Church, Medmenham, Bucks., on 31 March. Their address is 17 Pimlico Road, London, S.W.1.

### DEATH

The Editor regrets to announce the death of :

MR. HARRY DAVIES (Member of Council), Technical Manager, Imperial Chemical Industries, Ltd., Metals Division, Swansea, on 9 April. The Institute was represented at the funeral by Professor H. O'Neill (Vice-President). Mr. Davies was Chairman of the Swansea (now South Wales) Local Section from 1937 to 1939 and again from 1946 to 1948, and, as such, had previously served on the Council.

## NEWS AND ANNOUNCEMENTS

# NEWS OF LOCAL SECTIONS AND ASSOCIATED SOCIETIES

### LONDON LOCAL SECTION

At a meeting held at 4 Grosvenor Gardens, London, S.W.1, on 15 March 1951, Dr. G. L. J. BAILEY, Deputy Research Manager of The British Non-Ferrous Metals Research Association, gave a lecture entitled :

#### *The Wetting of Metals*

The lecturer dealt first, at some length, with the way in which liquid flows, by the action of surface-tension forces, over solid surfaces with which it comes in contact. The particular importance of the angle of contact in determining the extent of spreading on a free surface was pointed out, and attention was drawn to the fact that spreading on a free surface precedes entry into a capillary joint.

The draining of dipped coatings was examined and a physical explanation offered for the phenomenon of "dewetting". The effects of surface roughness upon the contact angle, and consequently upon spreading and dewetting, were then analysed in some detail.

The lecturer went on to discuss the factors which determine the contact angle and surface roughness in metallic systems, illustrating his remarks by reference to recent determinations of the several surface energies on the copper-lead system, and by slides showing the effects of small additions to tin and lead on the roughness of hot-dip coated copper surfaces.

Finally, a brief critical review was made of several methods for assessing the performance of solders which have been described from time to time, and certain points were illustrated by experimental demonstrations.

### OXFORD LOCAL SECTION

At a well-attended meeting held in Oxford on 17 April 1951, it was resolved to request the Council of the Institute of Metals to approve the formation of an Oxford Local Section, to serve a wide area around that city. The President, Chairman of the Local Sections Committee, and Secretary of the Institute were present. The meeting was opened by Dr. W. Hume-Rothery, O.B.E., F.R.S.

The request to form an Oxford Local Section has been welcomed and approved by the Council.

The following officers of the Section have been elected for the session 1951-52 :

*Chairman* : Dr. H. M. Finniston (Atomic Energy Research Establishment, Harwell).

*Vice-Chairmen* : Dr. W. Hume-Rothery, O.B.E., F.R.S. (Oxford University); Dr. R. T. Parker (Aluminium Laboratories, Ltd., Banbury).

## NEWS AND ANNOUNCEMENTS

*Honorary Secretary* : Dr. B. R. T. Frost (Atomic Energy Research Establishment, Harwell).

*Honorary Treasurer* : Mr. J. C. Arrowsmith (Pressed Steel Company of Great Britain, Ltd., Cowley).

*Members of Committee* : Mr. H. Chadwick (Northern Aluminium Company, Ltd., Banbury) ; Dr. J. Christian (Oxford University) ; Mr. G. Murray (Pressed Steel Company of Great Britain, Ltd., Cowley) ; Mr. A. A. Pearson (Morris Motors, Ltd., Cowley) ; Dr. A. E. W. Smith (Military College of Science, Shrivenham) ; Mr. D. Summers-Smith (Associated Electrical Industries, Ltd., Aldermaston) ; Dr. J. Thewlis (Atomic Energy Research Establishment, Harwell).

Members of the Institute resident in the area will, of course, be enrolled as members of the Local Section without charge, free membership of Local Sections being a privilege of membership of the Institute. Non-members will be accepted as Associates of the Local Section at a small subscription (rate not yet decided).

Members and non-members of the Institute who wish to enrol as members of the Local Section, or who wish for further particulars, are requested to apply to the Honorary Secretary of the Oxford Local Section, Dr. B. R. T. Frost, Atomic Energy Research Establishment, Harwell, Didcot, Berks.

## JOINT ACTIVITIES

### CAPPER PASS AWARDS

The Capper Pass Awards Adjudicating Committee has made the following awards for 1950, on behalf of the Councils of the Institution of Mining and Metallurgy and of the Institute of Metals :

MR. JAN DZIENISIEWICZ and MR. E. J. PRYOR £100 jointly for a paper on "An Investigation into the Action of Air in Froth Flotation", published in the *Bulletin of the Institution of Mining and Metallurgy*, 1950, April.

MR. J. J. HOBEN and MR. J. F. MULVEY £50 jointly for a paper on "The New Continuous Brass Mill of the Scovill Manufacturing Company, Waterbury, Conn., U.S.A.", published in the *Journal of the Institute of Metals*, 1950, July.

MR. R. G. WILKINSON and DR. F. A. FOX £50 jointly for a paper on "The Hot Working of Magnesium and Its Alloys", published in the *Journal of the Institute of Metals*, 1950, January.

The Capper Pass Awards, which are made annually from a sum of £200 placed at the disposal of the Councils of the Institution of Mining and Metallurgy and of the Institute of Metals by Messrs. Capper Pass and Son, Ltd., Bristol, are as follows :

(a) £100 per annum for one or more awards to authors of papers on some aspect of non-ferrous extraction metallurgy.

(b) £100 per annum for one or more awards to authors of papers relating to some process or plant used in the fabrication of non-ferrous metals.

Contributed by persons engaged full time in industrial practice.

## NEWS AND ANNOUNCEMENTS

The Adjudicating Committee will meet early in 1952 to consider all papers published by both societies during the year 1951. Papers on extraction metallurgy should be offered to the Institution of Mining and Metallurgy and papers on fabrication to the Institute of Metals. Authors need not be members of either society, and may be resident in any country. MSS. should preferably be submitted in duplicate to either the Secretary, Institution of Mining and Metallurgy, Salisbury House, Finsbury Circus, London, E.C.2, or the Secretary, The Institute of Metals, 4 Grosvenor Gardens, London, S.W.1, from whom further particulars may be obtained.

## APPOINTMENTS VACANT

APPLICATIONS are invited by the Division of Atomic Energy (Production), Research and Development Branch (Applied Research), for the following appointments at Springfields Factory, Salwick, Nr. Preston :

Post ARB/6. ENGINEER to undertake development work in connection with metallurgical engineering processes. Candidates must have a knowledge of tool-room machining, welding, jointing and presswork and a working knowledge of metallurgy. They must be able to apply established techniques to production conditions.

Post ARB/7. TECHNICAL ASSISTANTS to undertake development work on processes including machining, presswork, metal fabrication and various aspects of welding and jointing. The normal age limit is 24.

Candidates must have either an honours engineering degree, corporate membership of the Institution of Mechanical or Electrical Engineers or equivalent qualifications for post ARB/6 and have either an honours metallurgical or engineering degree or equivalent qualifications for post ARB/7.

Salary for post ARB/6 will be assessed (if over 30) according to qualifications and experience within the range £570-£720 p.a., or (if under 30) according to age and experience within the range £330-£545 p.a. Salary for post ARB/7 will be assessed according to age and experience within the range £330-£570 p.a. Applications to Ministry of Supply, D.A.T.E.N.(P), Risley, Nr. Warrington, Lancs, quoting reference of post applied for.

**G.E.C. RESEARCH LABORATORIES**, North Wembley, Middlesex, have an interesting opening for a university graduate, preferably aged 27-35, for research and development work on glass and refractories. Attractive starting salary dependent on experience and qualifications. Applications should be addressed to the Personnel Officer (Ref. GBLC/589), giving full details of age and record.

**METALLURGIST**. Messrs. J. Stone and Co. (Charlton), Ltd., have a vacancy for a Metallurgist for investigations on non-ferrous alloys in their Metallurgical Research Laboratory at Deptford. Applicants should have a good degree in Metallurgy or, alternatively, in Physics or Chemistry with metallurgical experience. Apply : Personnel Manager, J. Stone and Co. (Charlton), Ltd., Woolwich Road, Charlton, S.E.7.

**SUPERVISOR** required for ingot and billet foundry making light alloys, with metallurgical training and knowledge of chemistry. Age 25-30. Experience in similar work not essential, but must be able to control semi-skilled and unskilled labour. Full details of education and experience with salary required, stating when available if appointed, to Box 308, Institute of Metals, 4 Grosvenor Gardens, London, S.W.1.

**YOUNG METALLURGIST** with experience in casting technology required for research work on new light casting alloys. Position requires initiative and ability to work with minimum supervision. Apply in writing giving details of qualifications and experience to : Secretary, Magnesium Elektron, Ltd., Clifton Junction, Nr. Manchester.

# **THE SOLIDIFICATION OF CASTINGS**

... by R. W. Rudd

This survey of the literature on the solidification of castings and methods of controlling solidification covers both ferrous and non-ferrous metals and alloys. It is divided into two main sections. The first deals, in a general way, with work that has been done towards the empirical application of scientific principles to the production of castings and ingots; in this section the concept of "directional solidification" is discussed and the various means available to attain this end are considered. The second part of the book is concerned with the more fundamental study of the solidification rates of castings and ingots. In an Appendix, a critical survey is given of the available data on the thermal properties of metals and mould materials.

A Book for the Practical Foundryman and for the Research Worker

Cloth. 8vo. 116 pages. 46 figures. 10s. 6d. or \$2.00 (5s. 3d. or \$1.00 to members), post free

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## **NON-FERROUS METAL MELTING AND CASTING OF INGOTS FOR WORKING**

This symposium on metallurgical aspects of the subject consists of the following papers by recognized authorities and a full report of an important discussion held at a meeting attended by nearly 400 metallurgists. The papers are "Melting and Casting of Non-Ferrous Metals", by G. L. Bailey and W. A. Baker; "The Production of Refined-Copper Shapes", by R. H. Waddington; "Melting and Casting Aluminium-Bronze Ingots for Subsequent Working", by A. J. Murphy and G. T. Callis; "The Application of Flux Degassing to Commercially Cast Phosphor-Bronze", by N. I. Borth Williams; "The Melting and Casting of Brass", by Maurice Cook and N. F. Fletcher; "The Melting and Casting of Nickel Silver at the Works of Henry Wiggin and Co. Ltd.", by E. J. Bradbury and P. G. Turner.

**A book for the practical metallurgist**

Cloth. 8vo. 168 pages. 50 figures. 15s. or \$2.50 (7s. 6d. or \$1.50 to members), post free

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July 1951

# THE INSTITUTE OF METALS

President :

Professor A. J. MURPHY, M.Sc., F.I.M.

Secretary :

Lieut.-Colonel S. C. GUILLAN, T.D.

Editor :

N. B. VAUGHAN, M.Sc., F.I.M.

Assistant Secretary :

Major R. E. MOORE

Administrative and Editorial Offices:

4 GROSVENOR GARDENS, LONDON, S.W.1

Telephone :

SLOANE 5928 & 6233

## INSTITUTE NEWS AND ANNOUNCEMENTS

### AUTUMN MEETING, ITALY, 15-25 SEPTEMBER 1951

The provisional programme of this meeting was published on pp. 93-102 of the June 1951 issue of the *Journal*, and was distributed by circular letter to all members on 3 May 1951. Members who hope to be present at the meeting but who have not yet completed and returned to the Secretary the Reply Form are requested to do so without delay.

The final programme of the meeting will be sent only to those members who have requested it.

At the time of going to press (5 June) the final programme has not been received from the Executive Council in Italy, but the following changes in the programme, as previously published, have already been notified :

(a) Dr. F. Baldi, Acciaierie e Ferriere Lombarde Falck, Milan, has joined the Executive Committee.

(b) An additional visit will now take place to the works of the Società S.A.V.A., Porto Marghera, Venice.

(c) The Banquet, to be attended by members of the Associazione Italiana di Metallurgia and the Institute of Metals will now be held in Venice and not in Milan.

#### Discussion of Papers

The programme of papers to be discussed at the scientific and technical sessions at Venice are as follows, the dates of publication of the papers in the *Journal* being given in parentheses :

(i) BAILEY, G. L.: "Copper-Nickel-Iron Alloys Resistant to Sea-Water Corrosion" (No. 1308; July 1951).

(ii) BARON, H. G., and F. C. THOMPSON: "Friction in Wire Drawing" (No. 1285; Dec. 1950).

(iii) COOK, Maurice, R. CHADWICK, and N. B. MUIR: "Observations on Some Wrought Aluminium-Zinc-Magnesium Alloys" (No. 1309; July 1951).

(iv) HARDY, H. K.: (1) "The Effect of Small Quantities of Cd, In, Sn, Sb, Tl, Pb, or Bi on the Ageing Characteristics of Cast and Heat-Treated Aluminium-4% Copper-0.15% Titanium Alloy" (No. 1275; Oct. 1950) and (2) "The Tensile Properties of Heat-Treated Aluminium-Copper and Aluminium-Copper-Cadmium Alloys of Commercial Purity" (No. 1293; Feb. 1951).

## NEWS AND ANNOUNCEMENTS

(v) RUDDLE, R. W. and A. L. MINCHER : "The Influence of Alloy Constitution on the Mode of Solidification of Sand Castings" (No. 1278; Nov. 1950).

(vi) TYLECOTE, R. F. : (1) "The Adherence of Oxide Scales on Copper". With an Appendix by R. Eborall on "The Temperature of the Oxide Scale on Copper During Hot Rolling" and (2) "The Oxidation of Copper at 350°-900° C. in Air" (Nos. 1281 and 1282; Dec. 1950).

### GENERAL MEETING, LONDON, 17 AND 18 OCTOBER 1951

A special General Meeting of the Institute will be held in London on Wednesday and Thursday, 17 and 18 October 1951. Certain changes have been made by the Council in the provisional arrangements previously announced.

#### General Discussion on "Metal Economics"

On Wednesday, 17 October, at the Park Lane Hotel, Piccadilly, London, W.1, there will be an all-day General Discussion on "Metal Economics". The morning and afternoon sessions will be devoted to the subjects of "Primary Resources" and "Scrap Reclamation, Secondary Metals, and Substitute Metals", respectively, and each session will be opened by the presentation of brief, invited, papers, summaries of which will be distributed before the meeting.

#### Conversazione and Exhibition

In the evening of the same day there will be an informal conversazione and exhibition (tickets 7s. 6d. each, inclusive of light refreshments) at 4 Grosvenor Gardens, to provide an opportunity for personal contacts between members and their friends.

#### Visits

On the morning of Thursday, 18 October, a series of visits is being arranged to works and laboratories of interest to members in the London area.

### INFORMAL DISCUSSION ON "TOOL AND DIE MATERIALS FOR THE HOT-WORKING OF NON-FERROUS METALS"

A special General Meeting of the Institute will be held in Birmingham in the late autumn or early winter of this year when there will be an informal discussion on "Tool and Die Materials for the Hot-Working of Non-Ferrous Metals".

The date and place of the meeting, which is being organized by the Metallurgical Engineering Committee, will be announced as soon as possible. The chair will be taken by the Chairman of the Committee, Mr. Christopher Smith.

### SYMPOSIUM ON "EQUIPMENT FOR THE THERMAL TREATMENT OF NON-FERROUS METALS AND ALLOYS"

An all-day symposium on the subject of "Equipment for the Thermal Treatment of Non-Ferrous Metals and Alloys" is being arranged in connection with the 1952 Annual General Meeting, and will be held at the Park Lane Hotel, Piccadilly, London, W.1, on Wednesday, 26 March 1952. Papers for this meeting have been invited.

## NEWS AND ANNOUNCEMENTS

### APPEAL TO INDUSTRY FOR REGULAR FINANCIAL SUPPORT OF THE INSTITUTE'S WORK

The following additional subscription has been received in response to the Council's appeal to industry for regular financial support of the work of the Institute. Previous lists were published in the issues of the monthly *Journal* for March 1951 (pp. 61-64), May 1951 (pp. 84-85), and June 1951 (p. 104).

#### A.—Annual Subscription, Under Covenant, for Not less than 7 Years.

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Telegraph Construction and Maintenance Co., Ltd. (incl. Submarine Cables, Ltd.) . . . . .	£25 0 0    £40 5 0

#### B.—Annual Subscriptions to be Renewed (without obligation), But Not Under Covenant.

British Insulated Callenders Cables, Ltd. (incl. British Copper Refiners, Ltd.) . . . . .	£100 0 0
Fairey Aviation Co., Ltd. . . . .	£50 0 0
Follsain-Wycliffe Foundries, Ltd. . . . .	£2 2 0

#### C.—Donation.

Emery Brothers, Ltd. . . . .	£5 5 0
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### MEMBERSHIP DEVELOPMENT

Members are reminded that, as the Institute's financial year begins on 1 July, this is the best time of the year at which to apply for membership.

It is considered that the membership of the Institute is still capable of very great expansion, both in Great Britain and in all other countries where there are metallurgical industries. Members are invited, therefore, to bring to the notice of their friends the advantages of membership and, in particular, the services rendered to members in the *Journal* and in *Metallurgical Abstracts*. The latter are widely acknowledged to be the most comprehensive and authoritative of their kind published in any part of the world, and may be regarded as essential to all metallurgists and engineers who wish to be kept informed of the developments in their fields of interest.

The Secretary will be glad to supply copies of a new, attractively-produced pamphlet entitled "The Institute of Metals. Particulars of its Objects, Work, and Membership", and forms of application for membership. He will also be glad to have checked any lists of possible members that may be submitted to him, to verify that the persons listed have not been elected members or recently submitted applications for membership.

Rates of subscription are given below, with (in parentheses) the reduced rates applicable to members of the Iron and Steel Institute and the Institution of Metallurgists.

Ordinary Members: £4 4s. (£3 13s. 6d.) p.a.

Junior Members: £2 15s. (£2 10s.) p.a.

Student Members: £1 15s. (£1 11s.) p.a.

## NEWS AND ANNOUNCEMENTS

### REVISED LIST OF MEMBERS

As has previously been notified, it is intended to publish a revised List of Members, which will probably be corrected to 1 July, 1951.

Will members who have not already done so kindly complete and return to the Secretary the form distributed for completion in this connection. Members are also reminded of the importance of keeping the Secretary promptly advised of changes of address, degrees and other distinctions, and appointments and firms or other organizations with which they are connected.

The particulars required for the new List of Members are: Christian names in full, honorific distinctions, university degrees (with name of university in each case), appointment, firm or other organization, and the address (business or private) which it is desired shall be published in the new List.

### PUBLICATION OF LOCAL SECTION PAPERS IN THE MONTHLY JOURNAL

The Council has authorized the publication of suitable Local Section papers in the monthly periodical of the Institute. Because of the present restricted supplies of paper, the number of Local Section papers so published must for the time being be limited.

With effect from the issue for September 1951, the monthly publication of the Institute will contain the *Bulletin of the Institute of Metals*, the *Journal of the Institute of Metals*, and *Metallurgical Abstracts*, each of which will be separately bound and will have a separate pagination, volume number, and index.

The new *Bulletin* will contain Institute News and Announcements, News of Local Sections and Associated Societies and of Kindred Societies, Letters to the Editor on scientific and technical matters, and Local Section papers.

The contents of the *Bulletin* will be abstracted, and this new publication should attract the type of correspondence on scientific and technical matters that should be placed on permanent record. Authors of such correspondence are requested to be as concise as is possible.

### MONOGRAPH AND REPORT SERIES NO. 9: "THE HOT- WORKING OF NON-FERROUS METALS AND ALLOYS"

This cloth-bound volume, containing eight papers contributed to a symposium on "Metallurgical Aspects of the Hot-Working of Non-Ferrous Metals and Alloys" and a report of the valuable discussion that took place on them, is due for publication before the distribution of this issue of the monthly *Journal*.

The price of the volume—which contains 208 pages and 23 plates, with numerous illustrations in the text—is 15s. (or \$2.50), post free. Each member may obtain one copy of the book at the special price of 7s. 6d. (or \$1.50), post free.

## NEWS AND ANNOUNCEMENTS

### REPRESENTATIVES OF THE INSTITUTE

Mr. W. T. BUTCHER has succeeded Mr. H. S. Tasker, B.A., as the Institute's representative on the Joint Committee for National Certificates in Metallurgy.

Mr. D. S. BURWOOD, B.Sc., A.R.S.M., has succeeded Mr. Stanley Robson as the Institute's representative on British Standards Institution Technical Committee INE/4: Temperature Measurement.

Dr. S. W. SMITH, C.B.E., A.R.S.M., M.I.M.M., F.R.I.C., F.I.M., has succeeded Mr. W. A. C. Newman, O.B.E., as the Institute's representative on the Professional Classes Aid Council.

### ENGINEERING, MARINE AND WELDING EXHIBITION : OFFICIAL VISIT BY THE INSTITUTE

By invitation of the organizers, members of the Institute of Metals will pay an official visit to the Engineering, Marine and Welding Exhibition on Wednesday, 5 September. Specially printed tickets, each admitting two persons, are inserted in this issue of the *Journal*.

The Exhibition, which will be held in Olympia, London, W.14, will last from 30 August until 13 September 1951.

### "METALLURGICAL ABSTRACTS" VOLUMES WANTED

The Institute will pay £1 each, up to a limited number, for bound copies, in good condition, of *Metallurgical Abstracts*, 1942, vol. 9 and 1943, vol. 10. Copies offered for sale should be addressed to the Secretary.

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### ELECTION OF ORDINARY MEMBERS AND STUDENT MEMBERS

The following 10 Ordinary Members and 5 Student Members were elected on 21 May 1951:

#### *As Ordinary Members*

BUSHELL, Thomas Wyvern, A.Eng., Surveyor for Metals, Lloyds Register of Shipping, Albert Road, Middlesbrough, Yorks.

COLE, Brigadier Alan Giffard, O.B.E., Personal Assistant to the Chairman and Managing Director, Magnesium Elektron, Ltd., Bath House, 82 Piccadilly, London, W.1.

COUDEL, Jean, Directeur-Général, Forges de la Providence, Marchienne-au-Pont, Belgium.

DAWKINS, Alfred Ernest, B.Sc., A.I.C., F.R.I.C., Chief Superintendent, Defence Research Laboratories, Private Bag No. 4, Ascot Vale, Victoria, Australia.

EGLINTON, Samuel Sydney Edward, Regional Sales Manager, Imperial Chemical Industries, Ltd., Metals Division, Glasgow.

FITZGERALD, Timothy, National Gas Turbine Establishment, Whetstone, Leicester.

FREYNIK, Henry S., Chief Metallurgist, The Riverside Metal Company, Riverside, N.J., U.S.A.

HOWELL, Leonard Philip, Engineer, Northern Aluminium Co., Ltd., Rogerstone, Mon.

## NEWS AND ANNOUNCEMENTS

LODDER, Jacob, Senior Chemist, N. V. Mekog, Velsen, Holland.  
MOGHE, Dinker, B.Sc., Assistant Works Manager, Ordnance Factory, Ambarnath, India.

### *As Student Members*

FIEDLER, Howard C., B.S., S.M., Graduate Student, Metallurgy Department, Massachusetts Institute of Technology, Cambridge, Mass., U.S.A.  
FROST, Michael Andrew, Student of Metallurgy, University of Sheffield.  
HANNAFORD, Robert Heath, Shift Supervisor, Electrolytic Refining and Smelting Co. Pty., Ltd., Port Kembla, N.S.W., Australia.  
MACLEAN, Timothy Lachlan, Student of Metallurgy, Battersea Polytechnic, London, S.W.11.  
WILLIAMS, Thomas Howard, Laboratory Assistant, Bristol Aeroplane Co., Ltd., Filton, Bristol.

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### PERSONAL NOTES

MR. L. G. BERESFORD has been elected President of the London Branch of the Institute of British Foundrymen for the session 1951-52.

MR. CLEMENT BLAZEY has been elected an Honorary Member of the Australian Institute of Metals, in recognition of many years of service to the Institute, particularly to its Port Kembla Branch, of which he has twice been President and a Councillor since its inception as an unincorporated group in 1935.

MR. A. F. DUNBAR, Head of the Metallurgy Department of the Melbourne Technical College, has been granted six months' leave to enable him to visit metallurgical works and educational institutions in England and the United States.

MR. F. C. EVANS has been elected a Member of Council of the London Branch of the Institute of British Foundrymen.

MR. N. N. GHOSH has recently retired from his post as Chemist and Metallurgist to the Great Indian Peninsular Railway at Parel, Bombay, and is now in consulting practice at Calcutta.

MR. J. S. HOGGART has been elevated from a Senior Demonstratorship to be Lecturer in Mechanical Metallurgy in the University of Melbourne.

MR. E. A. HONTOIR was recently elected President of the Port Talbot Chamber of Commerce and Shipping..

MR. F. HUDSON has been elected a Member of Council of the London Branch of the Institute of British Foundrymen.

MR. M. VAN LANCKER has been awarded the "Prix Ampère" medal of the Société Française des Electriciens for his work on electrometallurgical subjects, in particular, high-frequency applications. He has also had conferred upon him the distinction of "lauréat" of the society.

MR. W. G. MOCHRIE has been re-elected as Honorary Secretary and Treasurer of the London Branch of the Institute of British Foundrymen.

MR. A. L. MOLINEUX has been appointed Managing Director of Winfields Rolling Mills, Ltd., Birmingham.

## NEWS AND ANNOUNCEMENTS

MR. J. G. PARR left for Canada in June to spend four months visiting metallurgical centres on a Nuffield Foundation Scholarship.

LIEUT. D. P. PATELL has been elected an Associate of the American Institute of Electrical Engineers and an Associate Member of the Institution of Engineers, India.

MR. C. P. PATON, General Works Manager of the Northern Aluminium Co., Ltd., Banbury has been elected a Director of the Company.

PROFESSOR A. PORTEVIN has been awarded the Gustave Trasenter medal of the Association des Ingénieurs sortis de l'Ecole de Liège.

MR. R. S. RUSSELL has been elected an Honorary Member of the Australian Institute of Metals, in recognition of his services as first Honorary Federal Secretary and of the contributions he has made, particularly on constitutional matters.

MR. C. J. WILLIAMS, Die Foundries Superintendent, High Duty Alloys, Ltd., Slough, was a member of the Die-Casting Productivity Team which recently visited the U.S.A. to study American technique.

MR. H. W. WORNER has been elected Chairman of the Physical Metallurgy Division of the Melbourne Branch of the Australian Institute of Metals.

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## NEWS OF LOCAL SECTIONS AND ASSOCIATED SOCIETIES

### COMMITTEES FOR THE SESSION 1951-52

The following Committees have been elected for the session 1951-52:

#### LOCAL SECTIONS

##### Birmingham

*Chairman* : Bernard Thomas, F.Inst.P., A.I.M.

*Vice-Chairman and Representative on Co-ordinating Committee of the Midland Metallurgical Societies* : H. H. Symonds, F.I.M.

*Honorary Secretary* : E. H. Bucknall, M.Sc., F.I.M.

*Assistant Honorary Secretary* : A. W. Matthews, L.I.M.

*Honorary Treasurer* : R. Chadwick, M.A., F.R.I.C., F.I.M.

*Past-Chairmen* : E. A. Bolton, M.Sc., F.I.M.; R. Chadwick, M.A., F.R.I.C., F.I.M.; W. L. Govier, F.I.M.

*Ordinary Members* : H. W. G. Hignett, B.Sc., F.R.I.C., F.I.M.; J. O. Hitchcock, B.Sc., F.I.M.; J. W. Jenkin, B.Sc., Ph.D., A.R.I.C., F.I.M.; R. King, B.Sc., Ph.D., A.I.M.; E. A. Smith (representing Associates); S. S. Smith, M.Met., F.I.M.; F. E. Stokeld, F.I.M.

##### London

*Chairman* : E. A. G. Liddiard, M.A., F.I.M.

*Vice-Chairman* : C. E. Ransley, Ph.D., M.Sc., F.I.M.

*Honorary Secretary* : E. C. Rhodes, Ph.D., B.Sc., F.R.I.C., F.I.M.

*Honorary Treasurer* : J. D. Grogan, B.A.

## NEWS AND ANNOUNCEMENTS

*Past-Chairmen* : G. L. Bailey, M.Sc., F.I.M.; W. F. Randall, B.Sc., A.R.S.M., M.I.E.E., F.I.M.; J. H. Watson, M.B.E., M.C., B.Sc., Ph.D., A.R.S.M., F.I.M.

*Ordinary Members* : J. C. Chaston, B.Sc., Ph.D., A.R.S.M., F.I.M.; R. G. Harper, M.Sc.; J. R. Knight, B.Sc., A.I.M.; E. C. J. Marsh, B.Sc., F.R.I.C., F.I.M.; W. K. B. Marshall, B.Eng., A.I.M.; E. G. V. Newman, B.Sc., A.R.S.M., A.R.I.C., A.I.M.

### Oxford

*Chairman* : H. M. Finniston, B.Sc., Ph.D.

*Vice-Chairmen* : W. Hume-Rothery, O.B.E., Ph.D., M.A., D.Sc., F.R.S., F.I.M.; R. T. Parker, Ph.D., B.Sc., A.R.S.M., F.R.I.C.

*Honorary Secretary* : B. R. T. Frost, Ph.D., B.S.

*Honorary Treasurer* : J. C. Arrowsmith, M.Met.

*Ordinary Members* : H. Chadwick, M.Sc.; J. Christian, D.Phil., M.A.; G. Forrest, B.Sc.; G. Murray, M.Sc., F.I.M.; A. A. Pearson, A.I.M.; A. E. W. Smith, Ph.D., B.Sc., F.I.M.; J. D. Summers-Smith, B.Sc.; J. Thewlis, D.Sc., F.Inst.P. (representing Associates).

### Scottish

*Chairman* : John Arnott, F.R.I.C., F.I.M.

*Vice-Chairman* : E. A. Fowler, B.Sc., A.R.T.C.

*Honorary Secretary* : Matthew Hay.

*Honorary Treasurer* : N. J. MacLeod.

*Past-Chairmen* : H. R. Beauchamp; A. B. Graham; A. Craig Macdonald, B.Sc., F.R.I.C., M.I.Mech.E., F.I.M.

*Ordinary Members* : J. E. Chard, B.Sc., A.R.S.M., A.R.I.C., A.I.M.; W. A. Dunlop; John Erskine; E. G. Flack; J. Glover (representing Associates); J. Gorman (representing Associates); H. Harris, B.Sc., Ph.D., D.I.C., A.R.C.S.; George MacDonald, O.B.E., B.Sc.

### Sheffield

*Chairman* : M. M. Hallett, M.Sc., F.I.M.

*Vice-Chairman* : W. R. Maddocks, B.Sc., Ph.D.

*Honorary Secretary and Treasurer* : A. J. MacDougall, M.Met., F.I.M.

*Assistant Secretary* : B. C. Woodfine, B.Met.

*Past-Chairmen* : H. G. Dale, F.R.I.C.; Major F. Orme, T.D., M.Met., A.R.I.C., F.I.M.

*Ordinary Members* : T. B. Bowker; A. Edwards, B.Sc., Ph.D., F.I.M.; H. P. Gadsby, Assoc. Met.; F. Mason, M.I.E.E.; Professor A. G. Quarrell, D.Sc., Ph.D., F.Inst.P., F.I.M.; Z. Stokowiec, A.M.I.Mech.E., F.I.M.

### South Wales

*Chairman* : E. A. Hontoir, B.Sc., A.I.M.

*Past-Chairman* : D. W. Hopkins, M.Sc., F.I.M.

*Honorary Secretary* : K. M. Spring, A.I.M.

*Honorary Treasurer* : W. H. Grenfell.

*Ordinary Members* : N. F. Eaton (representing Student Members); J. N. Harries (representing Junior Members); H. C. Hulme; C. J. C. Lewis (representing Associates); Professor H. O'Neill, D.Sc., M.Met., F.I.M.; J. S. Walton.

## NEWS AND ANNOUNCEMENTS

### ASSOCIATED SOCIETIES

#### Leeds Metallurgical Society

*President* : F. K. Neath, B.Sc.

*Vice-Presidents* : N. J. Petch, B.Sc., B.Met., Ph.D. ; H. F. Poole.

*Honorary Secretary* : R. Goodacre, B.Sc., Ph.D.

*Honorary Treasurer* : D. E. Catton.

*Past-Presidents* : W. R. Berry, Ph.D., M.Sc., A.R.I.C., F.I.M. ; G. W. Green ; J. Wilkinson.

*Ordinary Members* : J. R. Baines ; C. E. Burrell ; K. Irvine, Ph.D., B.Sc. ; C. S. Johnson ; D. Johnston, M.Sc. ; F. Lindars.

#### Liverpool Metallurgical Society

*President* : V. L. Farthing, M.I.Mech.E., M.I.Mar.E.

*Vice-President* : R. S. Brown, M.B.E., A.M.C.T., F.I.M.

*Honorary Secretary* : J. A. Pardoe, M.Eng., A.I.M.

*Honorary Treasurer* : H. J. Miller, M.Sc., F.I.M.

*Ordinary Members* : G. T. Callis, B.Sc., F.I.M. ; T. H. Fletcher ; A. E. Griffin ; J. J. Miles, A.I.M. ; R. S. Moore, A.I.M. ; V. Radcliffe, B.Eng.

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## JOINT ACTIVITIES

### BEILBY MEMORIAL AWARDS, 1950

The Administrators of the Sir George Beilby Memorial Fund, representing the Institute of Metals, the Royal Institute of Chemistry, and the Society of Chemical Industry, have decided to make two awards, each of one hundred guineas, from the Fund for 1950. These awards have been made to :

WILLIAM ALBERT BAKER, B.Sc. (Lond.), F.I.M., in recognition of his experimental contributions to knowledge of the factors determining the production of sound castings of non-ferrous metals and alloys.

GORDON WHITTINGHAM, M.A., Ph.D. (Cantab.), in recognition of his experimental contributions to knowledge of the combustion products of fuels containing sulphur and their effects on corrosion.

Awards from the Fund are made to British investigators in science as a mark of appreciation of distinguished work, particularly in such fields as fuel economy, chemical engineering, and metallurgy, in which Sir George Beilby's special interests lay. In general, the awards are not applicable to the more senior investigators, but are granted as an encouragement to relatively young men who have done independent work of exceptional merit over a period of years.

Mr. Baker is a member of the Institute of Metals and has published a number of papers in the *Journal*. He is Research Manager to the British Non-Ferrous Metals Research Association.

## NEWS OF KINDRED SOCIETIES

## AUSTRALIAN INSTITUTE OF METALS

The Australian Institute of Metals held its Fourth Annual General Meeting in Adelaide from 16 to 20 April 1951. An interesting programme of technical and social functions had been arranged by the Adelaide Branch of the Institute, and about 70 interstate members attended.

The deliberations of the Federal Council gave rise to important plans for the future development of the Institute along the lines of kindred British societies.

Federal Office Bearers were elected as follows : *President* : Mr. R. H. M. Rowe (Melbourne); *Vice-Presidents* : Mr. K. H. Bracher (Sydney) and Professor E. C. R. Spooner (Adelaide); *Honorary Secretary* : Mr. E. G. Love (Melbourne); *Honorary Treasurer* : Mr. J. M. Pethebridge (Melbourne).

## THE INSTITUTION OF METALLURGISTS : NEW ELECTIONS

The following elections have recently been announced :

*As Fellows*

W. H. Henman (John Wilkinson and Sons (Saltley), Ltd.), W. W. Kee (Enfield Rolling Mills, Ltd.), H. Lepp (Compagnie Générale du Duralumin et du Cuivre).

*As Fellows from the Grade of Associate*

K. W. Clarke (The de Havilland Aircraft Co., Ltd.), F. J. Hewitt (United Coke and Chemicals Co., Ltd.), R. Lee (Brightside Foundry and Engineering Co., Ltd.).

*As Associates*

R. W. Beatty (English Electric Co., Ltd.), C. Birtles (Hadfields, Ltd.), R. R. Brooks (Commonwealth Aircraft Corporation Pty., Ltd.), K. M. Brown (New Zealand Railways), R. Butler (B.S.A. Group Research Centre), T. A. Cosh (Jarrow Tube Works, Ltd.), J. H. M. Dickenson (Wm. Jessop and Sons, Ltd.), A. E. Dyke (Royal Ordnance Factory, Woolwich), T. H. L. Graff (Institute of Metals), H. T. Hall (Manchester College of Technology), P. A. Hayes (R. G. McLeod and Co., Ltd.), J. F. Hobbs (Imperial Chemical Industries, Ltd., Metals Division), H. A. Hocking (The Mond Nickel Co., Ltd.), J. Jackson (Atomic Energy Division, Ministry of Supply), A. Knight (Armament Research Establishment, Woolwich), J. F. Mills (Imperial Chemical Industries, Ltd., Metals Division), S. I. Neuman (General Motors, Ltd.), W. Pickford (Exors. of J. Mills, Ltd.), F. F. Rennie (Ferranti, Ltd.), D. A. Robins (General Electric Co., Ltd.), E. A. Shipley (Morris Motors, Ltd.), E. W. Skerrey (British Aluminium Co., Ltd.), R. G. Stewart (Commonwealth Aircraft Corporation Pty., Ltd.), L. J. Stone (Commonwealth Aircraft Corporation Pty., Ltd.), W. D. Walker (Thomas Firth and John Brown, Ltd.), G. M. Willis (University of Melbourne), J. D. Wright (Steel, Peetch and Tozer).

## NEWS AND ANNOUNCEMENTS

### *As Associates from the Grade of Licentiate*

A. Barker (Firth-Brown Tools, Ltd.), A. R. Bingham (Raleigh Industries, Ltd.), H. Bootman (Platt Metals, Ltd.), P. K. Chatterjee (Inspectorate of Metal and Steel, Government of India), S. Constantine (C. H. Parsons, Ltd.), R. F. Coppola (Bristol Aeroplane Co., Ltd.), G. P. Elson (Thomas Firth and John Brown, Ltd.), J. Hancock (London and Scandinavian Metallurgical Co., Ltd.), R. P. Marshall (C.A.V., Ltd.), D. P. Moses (British Iron and Steel Research Association), T. A. Nightingale (Park Gate Iron and Steel Co., Ltd.), S. C. Pearce (H. J. Enthoven and Sons, Ltd.), W. A. C. Pollock (Atomic Energy Division, Ministry of Supply), P. R. Purcell (Stewarts and Lloyds, Ltd.), R. W. Stobbs (Petters, Ltd., and Bryce Fuel Injection, Ltd.), J. H. Vorster (Union Steel Corporation of South Africa, Ltd.), G. A. Whittaker (Head Wrightson Stampings, Ltd.), F. S. Wilson (Leyland Motors, Ltd.).

### *As Licentiates*

K. H. Belcher (Commonwealth Aircraft Corporation Pty., Ltd.), S. Burrell (English Electric Co., Ltd.), W. Concannon (Park Gate Iron and Steel Co., Ltd.), J. Curtis (Bristol Aeroplane Co., Ltd.), D. Davies (The Mint, Birmingham, Ltd.), N. Davies (Edward Curran (Engineering) Ltd.), P. C. Ghosh (Bengal Engineering College), E. R. Gill (British Electricity Authority), G. B. Graves (Darwins, Ltd.), D. F. G. Hampton (Royal Arsenal, Woolwich), D. A. Houston (H. J. Enthoven and Sons, Ltd.), D. J. Hughes (Bristol Aeroplane Co., Ltd.), K. C. John (Carbometals, Ltd.), B. N. Laha (E.I. Railway, Jamalpur), L. G. Matthews (Steel Company of Australia Pty., Ltd.), W. M. Milton (R. B. Tennent, Ltd.), S. K. Mitra (Tata Iron and Steel Co., Ltd.), M. Preston (Wm. Jessop and Sons, Ltd.), K. Smith (Imperial Chemical Industries, Ltd., Metals Division), N. Tranter (F. H. Lloyd and Co., Ltd.), S. L. Vick (Guest, Keen and Nettlefolds (South Wales), Ltd.), R. D. Weber (Enfield Rolling Mills, Ltd.), D. J. Wingrove (Lactagol, Ltd.).

### SOCIÉTÉ FRANÇAISE DE MÉTALLURGIE : AUTUMN MEETING

The Autumn Meeting of the Société Française de Métallurgie will be held in Paris from Monday, 22 October to Saturday, 27 October 1951. Those interested in contributing to the discussion of papers should apply to the society, 5 Cité Pigalle, Paris 9<sup>e</sup>. It is hoped that the meeting will be as great a success as that held last year, when a large number of specialists from other countries participated.

### SPANISH IRON AND STEEL INSTITUTE

The Instituto del Hierro y del Acero plans to hold its second General Assembly in Madrid from 10 to 15 December. The meeting in Madrid—at which there will be technical sessions and social events and visits—will last about a week, and will be preceded by visits to important industrial centres in other parts of Spain. Particulars concerning dates, &c., may be obtained from the Director, Instituto del Hierro y del Acero, Villanueva 15, Madrid, Spain.

## NEWS AND ANNOUNCEMENTS

### OTHER NEWS

#### B.O.C. PRIZE FOR WELDING RESEARCH

A single prize of £100 is offered by the British Welding Research Association for the best paper received during the current year on a research into welding or its applications, from a Prize Fund donated by The British Oxygen Company, Ltd., in 1948. The fund was intended to cover a competition relating to welding extending over a period of three years. In 1949-50 a prize was awarded to Dr. K. Winterton, Mr. C. L. M. Cottrell, and Mr. J. G. Ball, who are all members of the Institute of Metals, for their paper entitled "A New Weldability Test for Magnesium Alloy Sheet"; the result for 1950-51 has not yet been announced. As no award was made in 1948-49, the further prize mentioned above is being offered. Full particulars can be obtained from the Secretary, British Welding Research Association, 29 Park Crescent, London, W.1.

#### "ONE HUNDRED YEARS OF ALUMINIUM"

A century's progress in aluminium is the theme of a special miniature exhibition arranged by the Aluminium Development Association to coincide with the Festival of Britain. The exhibits illustrate the growth of aluminium from a chemical curiosity in 1851, to a metal of primary industrial importance to-day, and shows the notable part played by Great Britain in developing the aluminium industry throughout the world.

The exhibition is open Mondays to Fridays from 9 a.m. to 6 p.m., until 28 September 1951, at the Association's headquarters 33 Grosvenor Street, London, W.1.

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### APPOINTMENTS VACANT

**A.P.V. COMPANY** require an ASSISTANT METALLURGIST for development work in connection with the welding of metals. Applicants should have a degree or equivalent qualification in metallurgy and some experience in welding would be advantageous. Post would be suitable for candidate under 30, who should preferably have an engineering background. Commencing salary will be of the order of £500 p.a., but dependent on age and experience. Application in writing to the Laboratory Manager, The A.P.V. Co., Ltd., Wandsworth Park, London, S.W.18.

**METALLURGIST or PHYSICIST** with research experience to undertake study of grain-boundary phenomena in metals. Initial salary up to £750 per annum. Also a GRADUATE in metallurgy, research experience not essential. Initial salary up to £550 per annum. Apply in writing with full details of qualifications and experience to: Research Manager, B.N.F.M.R.A., Euston Street, London, N.W.1.

**SENIOR** qualified and experienced **PHYSICAL CHEMIST** required by Manchester Chemical Factory. Position entails responsibility under Chief Chemist to lead small research group on high-temperature and vacuum processes. Salary commensurate with qualifications and experience. Apply Box No. 309, Institute of Metals, 4 Grosvenor Gardens, London, S.W.1

# THE INSTITUTE OF METALS

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## INSTITUTE NEWS AND ANNOUNCEMENTS

### AUTUMN MEETING, ITALY, 15-25 SEPTEMBER .951

Minor modifications have been made to the provisional programme of the Institute's Autumn Meeting, which—by invitation of the Associazione Italiana di Metallurgia—is being held in Italy. The main amendments to that programme are as follows : (a) the joint Banquet will be held in Venice and not in Milan, so that all those attending the meeting can be present ; (b) additional (aluminium and steel) works visits and some social functions are added ; (c) those who wish to visit the F.I.A.T. works will stay for a night at Turin ; (d) the party visiting Bolzano will leave Venice on the morning of Thursday, 20 September instead of the afternoon of Wednesday, 19 September ; and (e) there will be no joint session in Milan.

The following papers published in the Institute's *Journal* will be discussed at two scientific and technical sessions in Venice, on 17 and 18 September (the serial number and month of publication are given against each) :

- (1) BAILEY, G. L. : "Copper-Nickel-Iron Alloys Resistant to Sea-Water Corrosion" (No. 1308 ; July 1951).
- (2) BARON, H. G., and F. C. THOMPSON : "Friction in Wire Drawing" (No. 1285 ; Dec. 1950).
- (3) COOK, Maurice, R. CHADWICK, and N. B. MUIR : "Observations on Some Wrought Aluminium-Zinc-Magnesium Alloys" (No. 1309 ; July 1951).
- (4) HARDY, H. K. : "The Effect of Small Quantities of Cd, In, Sn, Sb, Tl, Pb, or Bi on the Ageing Characteristics of Cast and Heat-Treated Aluminium-4% Copper-0.15% Titanium Alloy" (No. 1275 ; Oct. 1950).
- (5) HARDY, H. K. : "The Tensile Properties of Heat-Treated Aluminium-Copper and Aluminium-Copper-Cadmium Alloys of Commercial Purity" (No. 1293 ; Feb. 1951).
- (6) RUDDLE, R. W. and A. L. MINCHER : "The Influence of Alloy Constitution on the Mode of Solidification of Sand-Castings" (No. 1278 ; Nov. 1950).

## NEWS AND ANNOUNCEMENTS

- (7) TYLECOTE, R. F.: "The Adherence of Oxide Scales on Copper" (No. 1281; Dec. 1950).
- (8) TYLECOTE, R. F.: "The Oxidation of Copper at 350°–900° C. in Air" (No. 1282; Dec. 1950).

### GROUPS

For administrative convenience, the parties will now be grouped as detailed below. Members and ladies included in these Groups will either have left London together with the Institute main party on Friday, 14 September or proceeded to Venice under their own private arrangements or from the Iron and Steel Institute Meeting.

#### A.—*Returning from Venice on Wed., 19 Sept.*

**Group 1.** London—Venice—London.

#### B.—*Returning from Milan (or Turin) on Sat., 22 Sept.*

**Group 2.** London—Venice—Milan—London.

**Group 3.** London—Venice—Bolzano—Milan—London.

**Group 4.** London—Venice—Milan—Turin—London.

#### C.—*Returning from Florence on Tues., 25 Sept.*

**Group 5.** London—Venice—Florence—London.

**Group 6.** London—Venice—Milan—Florence—London.

**Group 7.** London—Venice—Bolzano—Milan—Florence—London.

**Group 8.** London—Venice—Milan—Turin—Florence—London.

### DETAILED PROGRAMME

#### *Friday, 14 September*

2.0 p.m. Main British party leaves London by special train, accompanied by couriers.

#### *Saturday, 15 September*

6.15 p.m. Main British party arrives in Venice.

11.25 p.m. Party arrives in Venice from the Austrian meeting of the Iron and Steel Institute.

Groups 1 to 8, Inclusive. Programme in Venice from Sunday, 16 to Wednesday, 19 September

#### *Sunday, 16 September*

All day. Registration of members.

9.30 a.m. Official opening of the meetings of the Institute of Metals and the Associazione Italiana di Metallurgia, by the Mayor of Venice, in the Palazzo Ducale (Doge's Palace).

11.30 a.m. Reception, at the Ca' Farsetti Palace, by the Municipality of Venice.

3.0 p.m. Visit to the islands of Murano (where a glass factory will be seen) and Torcello. Reception, by the Industrial Associations of Venice and of Porto Marghera, on the island of Torcello.

Evg. Free in Venice.

## NEWS AND ANNOUNCEMENTS

*Monday, 17 September*

- Morn. Scientific and technical session.  
Ladies' visit (members may also attend), accompanied by a guide, to the Basilica of S. Marco and the Palazzo Ducale (Doge's Palace).
- Aft. Visits to works, departing from the Piazza Roma :
- (a) Ilva. Alti Forni e Acciaierie d'Italia, Stabilimento di Marghera (steel works).
  - (b) I.N.A. Industria Nazionale Alluminio (extraction of aluminium; ferro-alloys).
  - (c) S.A.V.A. Società Alluminio Veneto per Azioni (production of aluminium and aluminium alloys; aluminium powders).
  - (d) Società Industriale "San Marco", Stabilimento di Porto Marghera (ferro-alloys).
  - (e) Società Montevicchio. Società Italiana del Piombo e dello Zinco (lead and zinc metallurgy).
  - (f) Società Vetrocoker (coke plant, with adjoining works for the manufacture of special constructional glasses and for the production of chemicals and fertilizers).
- Ladies' visit (members may also attend), accompanied by a guide, to the Palazzo Rezzonico.
- 9.0 p.m. Autumn Lecture, by Professor ROBERTO PIONTELLI, on "Electro-chemistry and the Science of Metals". (The lecture will be delivered in English.)

*Tuesday, 18 September*

- Morn. Scientific and technical session.  
Ladies' visit (members may also attend), accompanied by a guide, to the School of S. Rocco and the Chiesa di S. Maria Gloriosa dei Frari, both of which contain paintings by the great artists of the Renaissance.
- Aft. Visits to works, departing from the Piazza Roma.  
(Note : The same series of works will be visited as on the previous day.)  
Ladies' visit (members may also attend), accompanied by a guide, to the Chiesa della Salute and the Galleria dell' Accademia di Belle Arti.
- Evg. Joint Banquet of the Associazione Italiana di Metalurgia and the Institute of Metals. (Dress : Lounge suits.)

*Wednesday, 19 September*

- Morn. Visits, for members and ladies, accompanied by guides, to :
- (a) Chiesa di SS. Giovanni e Paolo and the Chiesa di S. Maria dei Miracoli, or
  - (b) Basilica of S. Marco and the Palazzo Ducale (Doge's Palace).

## NEWS AND ANNOUNCEMENTS

From Mid-day the Itineraries of the Eight Groups (See p. 130) Vary as Follows :

### Group I

Wed., 19 Sept. 12.5 p.m. Depart from Venice by train for London, unaccompanied.  
Thurs., 20 Sept. 4.5 p.m. Arrive London.

### Group 2

*Itinerary, Wed., 19 Sept. (p.m.)—Sun., 23 Sept.*

Wed., 19 Sept. 2.30 p.m. Depart from Venice (with Groups 4, 6, and 8) by road, accompanied by a courier, for Milan, taking tea at Gardone (Lake Garda), and arriving at Milan at 8 p.m.  
Thurs., 20 Sept. Choice of four programmes (with Groups 4, 6, and 8) :

#### Programme A

Morn. Sightseeing in Milan, by motor coach (returning for lunch at members' hotels).  
Aft. Visit to the triennial exhibition of Decorative Art.  
Evg. Free in Milan.

#### Programme B

Morn. & aft. Members' visit to the steel and tube works of Dalmine.  
*Ladies'* visit to famous buildings, &c., at Bergamo, by invitation of the Società Dalmine.  
*Members and Ladies* : Lunch at Dalmine, by invitation of the Società Dalmine.  
Evg. Free in Milan.

#### Programme C

Morn. & aft. Members' visit to the works of Ilva.  
Alti Forni e Acciaierie d'Italia, Lovere.  
*Ladies'* visit to Lake Iseo, by invitation of the Società Ilva.  
*Members and Ladies* : Lunch at Lovere.  
Evg. Free in Milan.

#### Programme D

Morn. Visit to the Istituto Scientifico Tecnico Ernesto Breda (research laboratories) and to the Società Italiana Ernesto Breda (electric production of pig iron). Lunch at members' hotels.  
Aft. Other visits (to be arranged).  
Evg. Free in Milan.

## NEWS AND ANNOUNCEMENTS

Fri., 21 Sept.	Morn.	<i>Members</i> depart for Novara (with Group 6). Visit to the Istituto Sperimentale dei Metalli Leggere. <i>Ladies</i> leave Milan for Stresa.
	1.0 p.m.	<i>Members and Ladies</i> : Lunch at Stresa.
	Aft.	Steamer trip on Lake Maggiore. Arrive back in Milan at 8 p.m.
Sat., 22 Sept.	Evg.	Free in Milan.
	Morn.	Choice of programmes: (a) Visit to the Istituto Scientifico Tecnico Ernesto Breda, or (b) Visit to the Pinacoteca di Brera or (c) Sightseeing in Milan by motor coach.
	5.5 p.m.	Depart from Milan by train for London, accompanied by courier.
Sun., 23 Sept.	4.5 p.m.	Arrive London.

### Group 3

#### *Itinerary, Wed., 19 Sept. (p.m.)-Sun., 23 Sept.*

Wed., 19 Sept.	Aft.	Free in Venice.
	Evg.	" "
Thurs., 20 Sept.	Morn.	Depart by motor coach, accompanied by courier. Visit to the Electric Power Station of the Società Adriatica di Elettricità at Piave (Soverzene). After lunch at Cortina d'Ampezzo, depart for Bolzano, arriving at 6 p.m.
	Evg.	Free in Bolzano.
Fri., 21 Sept.	Morn.	<i>Members</i> : Visit to the works of I.N.A. Industria Nazionale Alluminio, Bolzano (the most up-to-date plant in Italy for the electrolytic production of aluminium). <i>Ladies</i> : Visit to (a) the Bolzano International Fair, or (b) excursion in Bolzano area.
	Aft.	Lunch (at hotel). Depart, by road, for Milan, taking tea at Gardone (Lake Garda), and arriving at Milan at 8 p.m.
	Evg.	Free in Milan.
Sat., 22 Sept.	Morn.	Choice of programmes: (a) Visit to the Istituto Scientifico Tecnico Ernesto Breda, or (b) Visit to the Pinacoteca di Brera, or (c) Sightseeing in Milan by motor coach.
	5.5 p.m.	Depart from Milan by train for London, accompanied by courier.
Sun., 23 Sept.	4.5 p.m.	Arrive London.

## NEWS AND ANNOUNCEMENTS

### Group 4

*Itinerary, Wed., 19 Sept. (p.m.)—Sun., 23 Sept.*

Wed., 19 Sept. 2.30 p.m. Depart from Venice (with Groups 2, 6, and 8) by road, accompanied by courier, for Milan, taking tea at Gardone (Lake Garda), and arriving at Milan at 8 p.m.

Thurs., 20 Sept. Choice of four programmes (with Groups 2, 6, and 8) :

#### *Programme A*

Morn. Sightseeing in Milan, by motor coach (returning for lunch at members' hotels).  
Aft. Visit to the triennial exhibition of Decorative Art.  
Evg. Free in Milan.

#### *Programme B*

Morn. & aft. Members' visit to the steel and tube works of Dalmine.  
*Ladies'* visit to famous buildings, &c., at Bergamo, by invitation of the Società Dalmine.  
*Members and Ladies* : Lunch at Dalmine, by invitation of the Società Dalmine.  
Evg. Free in Milan.

#### *Programme C*

Morn. & aft. Members' visit to the works of Ilva.  
*Ladies'* visit to Lake Iseo, by invitation of the Società Ilva.  
*Members and Ladies* : Lunch at Lovere.  
Evg. Free in Milan.

#### *Programme D*

Morn. Visit to the Istituto Scientifico Tecnico Ernesto Breda (research laboratories) and to the Società Italiana Ernesto Breda (electric production of pig iron). Lunch at members' hotels.  
Aft. Other visits (to be arranged).  
Evg. Free in Milan.

Fri., 21 Sept. 8.30 a.m. Depart for Turin (arriving 10.15 a.m.). Visit to the works of F.I.A.T. Ferriere Piemontesi (steel works and rolling mills). After lunch at members' hotels, visit to the works of F.I.A.T. Mirafiori (motor car manufacture).

## NEWS AND ANNOUNCEMENTS

Fri., 21 Sept.	Evg.	Free in Turin.
Sat., 22 Sept.		Depart for London unaccompanied.
Sun., 23 Sept.	4.5 p.m.	Arrive London.

### Group 5

*Itinerary, Wed., 19 Sept. (p.m.)-Wed., 26 Sept.*

Wed., 19 Sept.		Depart from Venice by train for Florence, accompanied by a courier.
Thurs., 20 Sept.		Free in Florence.
Fri., 21 Sept.		" " "
Sat., 22 Sept.		" " "
Sun., 23 Sept.	Morn.	Sightseeing in Florence, if desired, with Groups 6 and 7 (arr. from Milan), and 8 (arr. from Turin). Reception by the Industrial Associations of Florence.
	Aft.	Garden Party (with Groups 6, 7, and 8) in the Garden of the Palace of the Società Metallurgica Italiana.
Mon., 24 Sept.		Choice of two programmes :

### Programme A

Morn.	Visit to the works of the Società Metallurgica Italiana, Stabilimenti di Fornaci di Barga (Lucca) (foundry and rolling mills for copper, brass, aluminium, and light alloys). Lunch, by invitation of the Società Metallurgica Italiana.
3.0 p.m.	Visit to Pisa, by invitation of the Società Metallurgica Italiana, where famous buildings will be visited and tea will be taken.
6.0 p.m.	Depart from Pisa, arriving in Florence at 7.30 p.m.
Evg.	Free in Florence.

### Programme B

Morn. & aft.	Visit to the blast furnaces and steel works of Ilva. Alti Forni e Acciaierie d'Italia, Piombino.
5.0 p.m.	Leave Piombino for Florence, arriving in Florence at 9 p.m.

Tues., 25 Sept.	Morn.	Free in Florence.
	12.17 p.m.	Depart (with Groups 6, 7, and 8) by train for London, accompanied by courier.
Wed., 26 Sept.	4.5 p.m.	Arrive in London.

## NEWS AND ANNOUNCEMENTS

### Group 6

*Itinerary, Wed., 19 Sept. (p.m.)-Wed., 26 Sept.*

Wed., 19 Sept. 2.30 p.m. Depart from Venice (with Groups 2, 4, and 8) by road, accompanied by a courier, for Milan, taking tea at Gardone (Lake Garda), and arriving in Milan at 8 p.m.

Thurs., 20 Sept. Choice of four programmes (with Groups 2, 4, and 8):

#### *Programme A*

Morn. Sightseeing in Milan, by motor coach (returning for lunch at members' hotels).  
Aft. Visit to the triennial exhibition of Decorative Art.  
Evg. Free in Milan.

#### *Programme B*

Morn. & aft. *Members'* visit to the steel and tube works of Dalmine.  
*Ladies'* visit to famous buildings, &c., at Bergamo, by invitation of the Società Dalmine.  
*Members and Ladies*: Lunch at Dalmine by invitation of the Società Dalmine.  
Evg. Free in Milan.

#### *Programme C*

Morn. & aft. *Members'* visit to the works of Ilva. Alti Forni e Acciaierie d'Italia, Lovere.  
*Ladies'* visit to Lake Iseo by invitation of the Società Ilva.  
*Members and Ladies*: Lunch at Lovere.  
Evg. Free in Milan.

#### *Programme D*

Morn. Visit to the Istituto Scientifico Tecnico Ernesto Breda (research laboratories) and to the Società Italiana Ernesto Breda (electric production of pig iron). Lunch at members' hotels.  
Aft. Other visits (to be arranged).  
Evg. Free in Milan.

Fri., 21 Sept. Morn. *Members* : Visit (with Group 2) to the Istituto Sperimentale dei Metalli Leggere, Novara.  
*Ladies* leave Milan for Stresa.

## NEWS AND ANNOUNCEMENTS

Fri., 21 Sept.	1.0 p.m.	<i>Members and Ladies</i> : Lunch at Stresa.
	3.0 p.m.	Steamer trip on Lake Maggiore.
	6.30 p.m.	Depart for Milan, arriving at 8 p.m.
	Evg.	Free in Milan.
Sat., 22 Sept.	Morn.	Choice of programmes :
		(a) Visit to the Istituto Scientifico Tecnico Ernesto Breda, or
		(b) Visit to the Pinacoteca di Brera, or
		(c) Sightseeing in Milan by motor coach.
	1.30 p.m.	Depart by train for Florence, accompanied by a courier, having lunch on the train, and arriving at 5.55 p.m.
	Evg.	Free in Florence.
Sun., 23 Sept.	Morn.	Sightseeing in Florence, if desired (with Groups 5, 7, and 8). Reception by the Industrial Associations of Florence.
	Aft.	Garden Party (with Groups 5, 7, and 8) in the Garden of the Palace of the Società Metallurgica Italiana.
Mon., 24 Sept.		Choice of two programmes :
		<i>Programme A</i>
	Morn.	Visit to the works of the Società Metallurgica Italiana, Stabilimenti di Fornaci di Barga (Lucca) (foundry and rolling mills for copper, brass, aluminium, and light alloys). Lunch, by invitation of the Società Metallurgica Italiana.
	3.0 p.m.	Visit to Pisa, by invitation of the Società Metallurgica Italiana, where visits will be paid to famous buildings and tea will be taken.
	6.0 p.m.	Depart for Florence, arriving at 7.30 p.m.
	Evg.	Free in Florence.
		<i>Programme B</i>
	Morn. & aft.	Visit to the blast furnaces and steel works of Ilva. Alti Forni e Acciaierie d'Italia, Piombino.
	5.0 p.m.	Depart for Florence, arriving at 9 p.m.
Tues., 25 Sept.	Morn.	Free in Florence.
	12.17 p.m.	Depart (with Groups 5, 7, and 8) by train for London, accompanied by courier.
Wed., 26 Sept.	4.5 p.m.	Arrive in London.

## NEWS AND ANNOUNCEMENTS

### Group 7

*Itinerary, Wed., 19 Sept. (p.m.)—Wed., 26 Sept.*

Wed., 19 Sept.	Aft.	Free in Venice.
Thurs., 20 Sept.	Evg. Morn.	" " " Depart by motor coach, accompanied by courier. Visit to the Electric Power Station of the Società Adriatica di Elettricità at Piave (Soverzene). After lunch at Cortina d'Ampezzo, leave for Bolzano, arriving at 6 p.m.
Fri., 21 Sept.	Evg. Morn.	Free in Bolzano. <i>Members</i> : Visit to the works of I.N.A. Industria Nazionale Alluminio, Bolzano (the most up-to-date plant in Italy for the electrolytic production of aluminium).
	12.30 p.m.	Lunch (at hotel).
	2.30 p.m.	Depart, by road, for Milan, taking tea at Gardone (Lake Garda), and arriving in Milan at 7.30 p.m.
Sat., 22 Sept.	Evg. Morn.	Free in Milan. Choice of programmes : (a) Visit to the Istituto Scientifico Tecnico Ernesto Breda, or (b) Visit to the Pinacoteca di Brera, or (c) Sightseeing tour in Milan by motor coach.
	1.30 p.m.	Depart by train for Florence, accompanied by courier, arriving at 5.55 p.m.
Sun., 23 Sept.	Evg. Morn.	Free in Florence. Sightseeing in Florence, if desired, with Groups 5 and 6 (arr. from Milan), and 8 (arr. from Turin). Reception by the Industrial Associations of Florence.
	Aft.	Garden Party (with Groups 5, 6, and 8) in the Garden of the Palace of the Società Metallurgica Italiana.
Mon., 24 Sept.	Choice of two programmes :	

### *Programme A*

Morn.	Visit to the works of the Società Metallurgica Italiana, Stabilimenti di Fornaci di Barga (Lucca) (foundry and rolling mills for copper, brass, aluminium and light alloys). Lunch, by invitation of the Società Metallurgica Italiana.
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## NEWS AND ANNOUNCEMENTS

Mon., 24 Sept.	3.0 p.m.	Visit to Pisa, by invitation of the Società Metallurgica Italiana, where visits will be paid to famous buildings and tea will be taken.
	6.0 p.m.	Depart for Florence, arriving at 7.30 p.m.
	Evg.	Free in Florence.

### Programme B

Morn. & aft.		Visit to the blast furnaces and steel works of Ilva. Alti Forni e Acciaierie d'Italia, Piombino.
5.0 p.m.		Depart for Florence, arriving at 9 p.m.
Tues., 25 Sept.	Morn.	Free in Florence.
	12.17 p.m.	Depart (with Groups 5, 6, and 8) by train for London, accompanied by courier.
Wed., 26 Sept.	4.5 p.m.	Arrive in London.

### Group 8

#### *Itinerary, Wed., 19 Sept. (p.m.)—Wed., 26 Sept.*

Wed., 19 Sept.	2.30 p.m.	Depart from Venice (with Groups 2, 4, and 6) by road, accompanied by a courier, for Milan, taking tea at Gardone (Lake Garda), and arriving in Milan at 8 p.m.
Thurs., 20 Sept.		Choice of four programmes (with Groups 2, 4, and 6):

### Programme A

Morn.	Sightseeing in Milan, by motor coach (returning for lunch at members' hotels).
Aft.	Visit to the triennial exhibition of Decorative Art.
Evg.	Free in Milan.

### Programme B

Morn.	Members' visit to the steel and tube works of Dalmine.
	Ladies' visit to famous buildings, &c., at Bergamo, by invitation of the Società Dalmine.
	Members and Ladies: Lunch at Dalmine, by invitation of the Società Dalmine.
Evg.	Free in Milan.

## NEWS AND ANNOUNCEMENTS

### *Programme C*

Thurs., 20 Sept.	Morn. & aft.	<i>Members'</i> visit to the works of Ilva. Alti Forni e Acciaierie d'Italia, Lovere. <i>Ladies'</i> visit to Lake Iseo, by invitation of the Società Ilva. <i>Members and Ladies</i> : Lunch at Lovere. Evg. Free in Milan.
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### *Programme D*

	Morn.	Visit to the Istituto Scientifico Tecnico Ernesto Breda (research laboratories) and to the Società Italiana Ernesto Breda (electric production of pig iron). Lunch at members' hotels.
	Aft.	Other visits (to be arranged).
	Evg.	Free in Milan.
Fri., 21 Sept.	8.30 a.m.	Depart for Turin (arriving 10.15 a.m.). Visit to the works of F.I.A.T. Ferriere Piemontesi (steel works and rolling mills). After lunch at members' hotels, visit to the works of F.I.A.T. Mirafiori (motor car manufacture).
Sat., 22 Sept.	Evg.	Free in Turin.
Sat., 22 Sept.	9.0 a.m.	Depart for Florence arriving at 2.0 p.m.
Sun., 23 Sept.	Aft. & evg.	Free in Florence.
Sun., 23 Sept.	Morn.	Sightseeing in Florence, if desired, with Groups 5, 6, and 7. Reception by the Industrial Associations of Florence.
	Aft.	Garden Party (with Groups 5, 6, and 7) in the Garden of the Palace of the Società Metallurgica Italiana.
Mon., 24 Sept.	Choice of two programmes :	

### *Programme A*

	Morn.	Visit to the works of the Società Metallurgica Italiana, Stabilimenti di Fornaci di Barga (Lucca) (foundry and rolling mills for copper, brass, aluminium and light alloys). Lunch, by invitation of the Società Metallurgica Italiana.
	3.0 p.m.	Visit to Pisa, by invitation of the Società Metallurgica Italiana, where visits will be paid to famous buildings and tea will be taken.
	6.0 p.m.	Depart for Florence, arriving at 7.30 p.m.
	Evg.	Free in Florence.

## NEWS AND ANNOUNCEMENTS

### Programme B

Mon., 24 Sept.	Morn. & aft.	Visit to the blast furnaces and steel works of Ilva, Alti Forni e Acciaierie d'Italia, Piombino.
	5.0 p.m.	Depart for Florence, arriving at 9 p.m.
Tues., 25 Sept.	Morn. 12.17 p.m.	Free in Florence. Depart (with Groups 5, 6, and 7) by train for London, accompanied by courier.
Wed., 26 Sept.	4.5 p.m.	Arrive in London.

### CHANGE IN JOURNAL FORMAT

The present issue of the *Journal* will be the last to appear in the octavo format which has been used ever since the first volume appeared in 1909. For reasons that have led other scientific societies to take a similar step in recent years, the Council has decided that, beginning with the issue of September 1951, which is the first of a new volume, the *Journal* shall appear in quarto size (11 × 8½ in.).

This change in format does not mean any alteration in the nature of the contents of either the *Journal* or *Metallurgical Abstracts*, the standards of which will be fully maintained. It is proposed, however, to bind in with each monthly issue a new publication entitled the *Bulletin* of the Institute of Metals, which will contain, in addition to news and announcements, selected Local Section papers, Letters to the Editor on scientific and technical matters, and possibly other material. The *Bulletin* will have its own volume number, pagination, and index, and may be bound annually if so desired. It is hoped by the publication of Local Section papers to provide a service not only to the Sections themselves, but also to certain classes of members who at present feel that there are few papers published in the *Journal* that are of immediate practical use to them.

The Council realize that many members will regret the passing of the familiar octavo *Journal* and also that some may experience difficulty in accommodating the new size on their bookshelves. Nevertheless, the advantages of the change and the improvements it is proposed to effect in presentation in the *Journal* will, it is hoped, quickly commend the new format to the majority of members.

### ELECTION OF ORDINARY MEMBERS, JUNIOR MEMBER, AND STUDENT MEMBERS

The following 29 Ordinary Members, 1 Junior Member, and 10 Student Members were elected on 6 July 1951 :

#### *As Ordinary Members*

AHMAD, Shafiq, Superintendent, Melting Department, Pakistan Mint, Lahore, Pakistan.

BOLLIGER, Max, Head of Chemical Research Department, Cendres et Métaux S.A., Bienne, Switzerland.

## NEWS AND ANNOUNCEMENTS

- BUCKMAN, Peter, Research and Development Engineer, Morris Motors, Ltd., Radiators' Branch, Oxford.
- BURKE, Thomas J., M.S., Metallurgist, Johnson Bronze Company, 440 S. Mill Street, Newcastle, Pa., U.S.A.
- COLLIER, Claude William, Works Chemist, Ericsson Telephones, Ltd., Beeston, Notts.
- DACCÒ, CAV. Aldo, President, Associazione Italiana di Metallurgia, via S. Paolo 10, Milan, Italy.
- DEFREYN, Joseph Emile Ghislain, Ing. civil des Mines, Directeur, S.A. Laminoirs et Tréfileries de Hal, Hal, Belgium.
- EL LIETHY, Kadry Foad, B.Sc., Metallurgical Engineer, Ministry of Defence, Cairo, Egypt.
- ELTON, Miles, M.A., Director, Elton, Levy and Co., Ltd., 1-4 St. Ermin's (West Side), Caxton Street, London, S.W.1.
- FOX, Kenneth William, Surveyor of Forgings and Castings, Lloyd's Register of Shipping, Fenchurch Street, London, E.C. 3.
- FREJAQUES, Maurice, Dr. ès.Sci., Chef du Service de Recherches, Compagnie Alais, Froges et Camargues de Pechiney, 23 rue Balzac, Paris 8e, France.
- FRYE, John H., Jr., Ph.D., Metallurgist, Oak Ridge National Laboratory, P.O. Box P, Oak Ridge, Tenn., U.S.A.
- ISMAIL, Yousef, B.Sc., Metallurgical Engineer, Ministry of Defence, Cairo, Egypt.
- KENDRICK, George André, Ing., Senior Draughtsman, Production Drawing Office, Gestetner, Ltd., Fawley Road, London, N.17.
- LLOYD, Eric Gilbert, B.Sc.Eng., Metallurgical Department, Royal Small Arms Factory, Enfield Lock, Middlesex.
- MADINE, James Aloysius, Assistant Technical Superintendent, High Duty Alloys, Ltd., Winscales, Distington, Cumberland.
- METZL, John, Ing., Director, Strebor Diecasting Company, Ltd., Windley Works, Wolsey Street, Radcliffe, Lancs.
- MORCOUS, Shoukry, B.Sc., Engineer in Charge of Non-Ferrous Metals Works, Ministry of Defence, Cairo, Egypt.
- MYERS, Rupert Horace, Ph.D., M.Sc., Senior Research Officer, C.S.I.R.O., seconded to Atomic Energy Research Establishment, Harwell, Didcot, Berks.
- NICOLAU, Ingénieur-Général J. Pierre, Directeur de l'Institut Supérieur des Matériaux et de la Construction Mécanique, 233 Boulevard Raspail, Paris, France.
- PETERSEN, Edward J., B.Ch.E., Metallurgist, U.S. Naval Ordnance Laboratory, White Oak, Silver Spring 19, Md., U.S.A.
- POOLE, H. J., Works Manager, Leopold Lazarus, Ltd., St. Stephens Street, Birmingham 6.
- PORRO, Giovanni, Dr.Ing., Technical Manager, Società Metalurgica Italiana, 99 Borgo Pinti, Florence, Italy.
- ROBERTS, William James, Editor, "Product Finishing", Sawell Publications, Ltd., 4 Ludgate Circus, London, E.C.4.
- ROWLEY, Edward, Chief Chemist, James Neill and Company (Sheffield), Ltd., Composite Steel Works, Napier Street, Sheffield 11.
- SIEBEL, Gustav, Dr.Phil., Metallurgist, Aluminium-Walzwerke Singen G.m.b.H., Singen-Hohentwiel, Germany.
- WALTON, Ronald Newton, Engineer, United Steel Companies (India), Ltd., Himalaya House, Hornby Road, Bombay, India.
- WARD, Samuel Henry Dewick, M.B.E., Chief Process Engineer, Ericsson Telephones, Ltd., Beeston, Notts.

## NEWS AND ANNOUNCEMENTS

WOOD, David B., A.B., S.B., Development Engineer, Aluminum Company of America, 2210 Harvard Avenue, Cleveland 5, O., U.S.A.

### *As Junior Member*

LAWRIE, John A. N., Metallographer, Australian Aluminium Company Pty., Ltd., P.O. Box 12, Granville, N.S.W., Australia.

### *As Student Members*

BULLEN, Francis Peter, B.Sc., Research Student, Baillieu Laboratory, Melbourne University, Melbourne, Vic., Australia.

CALDICOTT, Peter David, Student of Metallurgy, University College, Cardiff.

DONOVAN, Maurice, Student of Metallurgy, Battersea Polytechnic, London, S.W.11.

HARDWICK, Henry Cecil, Student of Metallurgy, Battersea Polytechnic, London, S.W.11.

HU, Hsun, B.S., M.S., Graduate Student, University of Notre Dame, Notre Dame, Ind., U.S.A.

HULL, Derek, Student of Metallurgy, University College, Cardiff.

SUDBURY, Michael Peter, Student of Metallurgy, Sheffield University.

SUTER, John William, B.Sc., Research Student, University of Melbourne, Melbourne, Vic., Australia.

THORLEY, Raymond Thomas, B.Sc., Research Metallurgist, Aluminium Laboratories, Ltd., Banbury, Oxon.

WILLIAMS, Dean Nesbit, B.S., M.S., Graduate Student, Missouri School of Mines and Metallurgy, Rolla, Mo., U.S.A.

## APPEAL TO INDUSTRY FOR REGULAR FINANCIAL SUPPORT OF THE INSTITUTE'S WORK

The following additional contributions have been received in response to the Council's appeal to industry for regular financial support of the work of the Institute :

General Electric Company (of America) . . . . .	\$250
Belliss and Morcom, Ltd. . . . .	£10 0 0

## METAL PHYSICS COMMITTEE

The following have agreed to serve as co-opted members of the Metal Physics Committee, the composition of which was given in the June issue of the *Journal* (p. 110) :

Dr. F. C. Frank.

Mr. W. M. Lomer.

Dr. J. Nutting.

Mr. L. Rotherham.

## MONOGRAPH ON "NON-DESTRUCTIVE TESTING OF METALS"

No. 10 of the Institute's Monograph and Report Series will be published early in the autumn of the present year. Specially commissioned by the Council, it has been written by Dr. R. F. HANSTOCK, Chief Physicist, High Duty Alloys, Ltd., Slough, on the subject of "Non-Destructive Testing of Metals".

## NEWS AND ANNOUNCEMENTS

The book, which will be issued cloth-bound, will contain approximately 170 pages and 8 plates. The published price will be 21s. (or \$3.50) post free, and—as a privilege of membership—each member of the Institute may purchase one copy at the reduced rate of 10s. 6d. (or \$2.00), post free.

Orders for this book will now be accepted if accompanied by a remittance in payment.

### ANNOTATED EQUILIBRIUM DIAGRAMS

Two new Annotated Equilibrium Diagrams have recently been published by the Institute: No. 8, "The Iron-Zinc System" and No. 9, "The Antimony-Lead System". Both have been prepared by Professor G. V. Raynor, who was responsible for all the previous diagrams in the series. They are available from the Institute, price 2s. (\$0.50) each, post free. Members may obtain one copy of each diagram at the privileged price of 1s. (\$0.40), post free.

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### PERSONAL NOTES

MR. G. L. BAILEY has been appointed Honorary Treasurer of the Institution of Metallurgists in succession to Dr. C. J. Smithells.

MR. H. R. BEAUCHAMP has been appointed Home Sales Controller, Imperial Chemical Industries, Ltd., Metals Division, and has transferred from Glasgow to Birmingham.

DR. R. W. CAHN, of the Atomic Energy Research Establishment, has been appointed Lecturer in the Department of Metallurgy at Birmingham University and took up his duties there on 1 August.

DR. J. W. CHRISTIAN has been elected to a Pressed Steel Company Research Fellowship.

DR. G. P. CONTRACTOR has been appointed Acting Director of the National Metallurgical Laboratory of India, Jamshedpur.

MR. T. S. FULLER, Engineer in Charge of Works Laboratory, General Electric Company, Schenectady, N.Y., has been elected President of the American Society for Testing Materials for the year 1951-52.

DR. R. GENDERS has become associated as consultant with Messrs. Sandberg, 40 Grosvenor Gardens, London, S.W.1, in connection with the recently reopened analytical laboratory and test-house of that firm.

MR. COLIN GRESTY has been elected President of the Institute of British Foundrymen for the year 1951-52.

MR. H. W. G. HIGNETT has been elected President of the Birmingham Metallurgical Society.

DR. V. J. D. HILL, formerly Chief Metallurgist of the Philips group of companies in England and Commercial-Technical Manager of Philips Industrial, has recently resigned from the position of Manager of the Electric Welding Division of Thermal Welding Products, South Africa, and has been appointed Manager of Quasi-Arc, South Africa.

## NEWS AND ANNOUNCEMENTS

DR. R. W. K. HONEYCOMBE has been appointed senior lecturer in the Department of Physical Metallurgy at Sheffield University.

MR. JOHN C. LORETTA has returned to England from America, having been working since 1949 in copper refineries in Canada, South America, and the United States.

MR. W. E. MAHIN has been appointed Director of the Metallurgical Projects Division of the new Metallurgical Advisory Board of the U.S. National Research Council. He will also continue in his post as Director of Research of the Armour Research Foundation of the Illinois Institute of Technology, Chicago.

MR. D. A. OLIVER is a member of a special mission which is visiting the United States under the auspices of the Anglo-American Council on Productivity to study the problem of conservation of scarce materials. Mr. Oliver has recently been appointed Metals Economy Adviser to the Minister of Supply and he will also be available to advise the Lord Privy Seal on questions of economy in connection with the supply of non-ferrous metals.

MR. E. C. W. PERRYMAN is leaving the British Non-Ferrous Metals Research Association in order to take up a post on the staff of Aluminium Laboratories, Ltd., Kingston, Ont., Canada.

DR. L. B. PFEIL has been elected a Vice-President of the Institution of Metallurgists.

PROFESSOR A. G. QUARRELL has been elected a Member of Council of the Institution of Metallurgists.

MR. R. A. SCHATZEL, Vice-President of the Rome Cable Corp., Rome, N.Y., has been elected a member of the Board of Directors of the American Society for Testing Materials for a term of three years.

MR. P. E. SHARP has left British Thomson-Houston Co., Ltd., and is now lamp engineer with Thorn Electrical Industries, Ltd., Merthyr Tydfil.

DR. C. J. SMITHILLS has been installed as President of the Institution of Metallurgists for the year 1951-52.

SIR ARTHUR SMOOT has been elected President of the Birmingham Chamber of Commerce.

DR. C. SYKES has been appointed Managing Director of Thos. Firth and John Brown, Ltd.

MAJOR P. L. TEED is a member of a special mission which is visiting the United States under the auspices of the Anglo-American Council on Productivity to study the problem of conservation of scarce materials.

MR. C. S. THOMAS has been admitted as a Member of the Institution of Engineering Inspection.

DR. D. W. WAKEMAN has been appointed a Lecturer in the Department of Physical Metallurgy at Sheffield University.

## JOINT ACTIVITIES

### JOINT COMMITTEE FOR NATIONAL CERTIFICATES IN METALLURGY

#### Report for the Year 1949-50

1. The Joint Committee has approved three new Schemes for National Certificates in Metallurgy during 1950, and Schemes are also being organized in districts not yet covered, with a view to suitable courses being started as soon as possible.

2. Courses approved by the Joint Committee have been in operation during 1949-50 at the following Technical Colleges :

(a) *Ordinary National Certificate*.—Battersea Polytechnic, London ; Birmingham College of Technology ; Bristol, The College of Technology ; Chesterfield Technical College ; Corby Technical College ; Coventry Technical College ; Cumberland Technical College, Workington ; Derby Technical College ; Enfield Technical College ; Leeds College of Technology ; Llanelli Technical College, Carmarthenshire ; Middlesbrough, Constantine Technical College ; Neath Mining and Technical Institute ; Newport Technical College, Monmouthshire ; Nottingham and District Technical College ; Rotherham College of Technology ; Scunthorpe Technical College ; Shotton, Deeside Technical Institute ; Smethwick, The Chance Technical College ; Stoke-on-Trent, North Staffordshire Technical College ; Swansea Technical College ; Wandsworth Technical College, London ; Wednesbury, County Technical College ; Wolverhampton and Staffordshire Technical College. *Contributory Centres*.—Bordesley Green Technical School and Moseley Grammar School Evening Institute (Contributory Centres to Birmingham College of Technology) ; Dudley and Staffordshire Technical College (Contributory Centre to Wednesbury County Technical College) ; Nottingham People's College Senior Technical Institute (Contributory Centre to Nottingham and District Technical College).

(b) *Higher National Certificate*.—Battersea Polytechnic, London ; Birmingham College of Technology ; Chesterfield Technical College ; Coventry Technical College ; Middlesbrough, Constantine Technical College ; Rotherham College of Technology ; Rugby College of Technology ; Sir John Cass Technical Institute ; Smethwick, The Chance Technical College ; Swansea Technical College ; Wednesbury, County Technical College ; Wolverhampton and Staffordshire Technical College.

3. Final Examinations of the course for the Ordinary National Certificate have been held during 1950 at 20 Technical Colleges, and for the Higher National Certificate at 11 Technical Colleges, for candidates who have satisfied the conditions laid down in Ministry of Education Rules 111, under which the Scheme is operated.

## NEWS AND ANNOUNCEMENTS

**4. The Committee is pleased to report that :**

(a) 142 candidates have qualified for the award of an Ordinary National Certificate in Metallurgy, and 42 candidates have qualified for the award of a Higher National Certificate, as a result of Final Examinations held in 1950.

(b) The records of a further 4 candidates for the Ordinary National Certificate have been approved by the Joint Committee, subject to the fulfilment of certain conditions.

(c) 2 candidates for the Ordinary National Certificate who entered the Final Examinations in 1948 and 1949 respectively and whose records were approved by the Joint Committee, subject to certain provisions, have qualified for the award of Certificates in 1950.

(d) Distinctions have been gained by 31 candidates who have shown an exceptional grasp of their subjects, indicating a high degree of training and knowledge in the particular subject in which the Distinction has been gained.

**5. Comparative figures of entries and successful candidates for the five years since the institution of the Scheme for National Certificates in Metallurgy are as follows :**

*(i) Ordinary National Certificate :*

Year	Technical Colleges	Number of Candidates	
		Entered	Awarded Certificates
1946	4	28	23
1947	11	102	69
1948	15	123	74
1949	21	222	107 *
1950 †	20	281	142 *

\* Including 2 candidates whose Certificates were withheld in the previous years.

† In 1950 the Course for the Ordinary Certificate at Ilkeston was transferred to Nottingham and District Technical College; and that for the Ordinary Certificate at Battersea Polytechnic to Wandsworth Technical College; at Leeds and Stoke-on-Trent Technical Colleges there were no candidates for the final examinations for 1950.

*(ii) Higher National Certificate :*

Year	Technical Colleges	Number of Candidates	
		Entered	Awarded Certificates
1946	—	—	—
1947	2	22	18
1948	8	38	22
1949	10	74	59 *
1950	11	62	42 †

\* Including 9 whose Certificates were withheld in 1948.

† Subject to confirmation of the record of one candidate.

**6. Prizes have been awarded in 1950 to 36 successful candidates who have shown particular merit in the Final Examinations, from**

## NEWS AND ANNOUNCEMENTS

the Prize Fund established by The Iron and Steel Institute, The Institution of Mining and Metallurgy, and The Institute of Metals for the purpose. 128 candidates have gained Prizes during the five years of the operation of the Scheme for National Certificates in Metallurgy.

## OTHER NEWS

### WROUGHT NON-FERROUS METALS : PRODUCTIVITY TEAM REPORT

The report of a visit to the U.S.A., in 1950, of a Productivity Team representing the British wrought non-ferrous metals industry has been published, and is obtainable (price 4s. 6d., post free) from the British Non-Ferrous Metals Federation, 132 Hagley Road, Birmingham, or the Anglo-American Council on Productivity, 21 Tothill Street, London, S.W.1.

### GENERAL DISCUSSION ON HEAT TRANSFER, LONDON, 11-13 SEPTEMBER 1951

Developments in the mechanism of transference of heat and in the design of apparatus relating thereto will be the subject-matter for discussion at a Conference to be held in London from 11 to 13 September 1951 at the Institution of Mechanical Engineers and in Caxton Hall, Caxton Street, London, S.W.1. The Conference is being arranged jointly by the Institution of Mechanical Engineers and the American Society of Mechanical Engineers, in association with a number of other societies, of which the Institute of Metals is one.

The two organizing Institutions are arranging for the presentation of groups of papers, and it is anticipated that each Institution will submit 40-50 separate papers, making a total of 80-100 papers for discussion on the many aspects of the subject.

It is proposed to restrict the papers to developments which have taken place during the last ten years, and the following main group headings have been agreed as covering the field of discussion : (a) heat transfer with change of state ; (b) heat transfer between fluids and surfaces ; (c) conduction in solids and fluids ; (d) radiation, instrumentation, measurement techniques, and analogies ; (e) special problems such as heat transfer in turbine blade cooling, in liquid metals, in gas turbines, and in piston engines, the mercury boiler, &c.

So that the major portion of each session can be devoted to discussion, papers will be presented at the Conference in abstract. Advance copies of the papers will be available some time before the beginning of the Conference. The combined cost of a set of pre-prints and of the bound volume containing the discussions will be £2 12s. od., if ordered in advance. Tentative arrangements provide for technical sessions to be held in the morning and afternoon of each day of the Conference, and on Tuesday evening, 11 September, there will be a conversazione to which ladies will be welcomed ; on Wednesday evening it is anticipated there will be a James Clayton Lecture.

Preliminary reply forms may be obtained from the Secretary, The Institute of Metals, 4 Grosvenor Gardens, London, S.W.1.



